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A History of "Bulletin 28"

Food Composition Tables in the U.S.A.

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THE DIETITIAN, public health nutritionist, and home economist today have available a number of ready reference tables for the computing of diets and food values. All of these references are of comparatively recent origin. Back in 1895, there was no compilation of data on the composition of American foods, although there was a bulletin on the analyses of feed for animals. The only source of information on the composition of American foods was in a German publication by König, where data from American analyses were included in the average of results from other sources.

Early Analyses and Research

In this country it all began with "Bulletin 28" (1). This publication, *The Chemical Composition of American Food Materials* by W. O. Atwater and C. D. Woods, was published by the U. S. Department of Agriculture in 1896. This bulletin contained data from 2,572 analyses of American food products, presented as the minimum, maximum, and average percentage of refuse, water, protein, fat, carbohydrate, and ash, and the fuel value per pound. It was a thin bulletin, just forty-one pages plus five pages of index, but it brought together all of the available data on food composition that previously had been scattered in various reports of the U. S. Commission of Fish and Fisheries and the Storrs (Conn.) Experiment Station, and in bulletins of the Division of Chemistry of the U. S. Department of Agriculture.

Accurate data on food composition could not be obtained until suitable methods of chemical analysis had been developed. About 1864, the so-called Weende method came into general use in Europe, and the first analysis of American food to be made by this new method was by Atwater in 1869 on Indian corn (2), which he presented for his thesis for the doctoral degree from Yale. However, what was probably the first chemical analysis of an American food was made by Salisbury (3) in 1848 on Indian corn, using the older methods of analysis. In 1877, Atwater began studies which he carried on for the next five years on the chemical composition and nutritive economy of food fish and invertebrates. This work was done at the suggestion of Professor S. F. Baird, Secretary of the Smithsonian Institution and U. S. Commissioner of Fish and Fisheries. Then, in 1884, Atwater "was asked to prepare plans for specimens, labels and other illustrative materials for the food collection of the U. S. National Museum" (4). This necessitated analysis of American foods, and he carried on this work in the laboratory of Wesleyan University at Middletown, Connecticut, with funds from the National Museum and private sources.

The Agricultural Experiment Stations were created as a result of the Hatch Bill of March 2, 1887. This bill provided ". . . duty of said experiment stations to conduct original researches on . . . the composition and digestibility of the different kinds of food for domestic animals." Thus we see that the composition of animal food received official attention before the food of man. However, the establishment of the Storrs Experiment Station under Atwater's direction, provided opportunity for continuing the food analysis work. It was not until 1894 that Congress appropriated $10,000 "to enable the Secretary of Agriculture to investigate and report upon the nutritive value of the various articles and commodities used for human food." This work was assigned to the Office of Experiment Stations under Dr. Atwater, who was designated Chief of Nutrition Investigations. Dietary studies of many classes of people were initiated, and food analysis was an essential part of the program.

In the meantime, the 1893 World's Columbian Exposition in Chicago offered further opportunity for collecting specimens of American food. The executive committee on awards of the Exposition invited H. W. Wiley to analyze specimens of cereal grains and milled products and Dr. Atwater to analyze

prepared foods and especially animal foods. By 1894, Atwater and associates had completed analyses of over five hundred food samples.

The Division of Chemistry of the U. S. Department of Agriculture also investigated foods of man.

Bulletin 28

Thus was the background data obtained for Bulletin 28. Atwater wrote in its introduction (1): "This table is intended to replace previous ones and to serve as a standard of reference until it shall in turn be replaced by a larger and more complete compilation." It was replaced three years later by a revision by Atwater and Bryant which was expanded to seventy-seven pages of text and tabular material with data from over four thousand food samples; more than one-third of these were analyzed by Atwater and his associates. The bulletin was reprinted in 1906 with minor changes.

Bulletin 28 became *the* book of food values and was widely used throughout the world. During World War I, it was used extensively in the United States and also by the Inter-Allied Food Commission in determining the food requirements of the allied nations.

Successors to Bulletin 28

As more data became available for a variety of foods, three new compilations were prepared by the U. S. Department of Agriculture giving the proximate composition of beef (5), fresh fruits (6), and fresh vegetables (7). By 1940, commercial methods of food processing had changed and many new foods were on the market. There was a demand for new food tables to provide average values of a comprehensive list of foods used in current diets and Bulletin 28 was replaced by Circular No. 549, *Proximate Composition of American Food Materials* (8), which represented a thorough review of all available data.

Five years later, a new bulletin, *Tables of Food Composition in Terms of Eleven Nutrients*, was published (9) "to meet the needs of teachers, dietitians, nutritionists and others engaged in planning diets or in calculating the nutritive value of food supplies." The new tables presented the nutritive value of 100 gm. edible portion of food and 1 lb. food as purchased. For the first time, data were included for calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, and ascorbic acid. The bulletin (9) was prepared by the Bureau of Home Economics of the U. S. Department of Agriculture and the Committee on Food Composition, Food and Nutrition Board, National Research Council.

Improved methods of vitamin analysis, investigation of losses of minerals and vitamins in cooking, discovery of new vitamins, and new analytical data on mineral and vitamin values of food soon provided material for a new publication. In 1950, Handbook No. 8, *Composition of Foods—Raw, Processed, Prepared* (10), became, and is at present, the standard reference. This Handbook presents three tables of data on the proximate composition and mineral and vitamin content of foods compiled mainly from research data from laboratories in universities, colleges, agricultural experiment stations, scientific organizations, industry, and the Bureau of Fisheries. In addition to food values in terms of 100 gm. edible portion and 1 lb. as purchased, a third table was added. This table gives the composition of foods in common household units, and, while not providing data of the degree of accuracy found in tables based on weight units, it has been of much practical use in estimating individual diets.

Since World War II, our thinking has of necessity been in international terms, especially is this so with regard to foods and nutrition. In 1949, Charlotte Chatfield, who had worked on the compilation of data for several of the U. S. Department of Agriculture's publications, undertook for the Food and Agricultural Organization of the United Nations the preparation of *Food Composition Tables for International Use* (11), giving calories (calculated by specific factors), protein, fat, carbohydrate (by difference), fiber, ash, and water content of foods from all parts of the world. More detailed data were soon requested by nutritionists, teachers, physicians, agricultural missionaries, and others wishing to estimate the adequacy of food supplies and to make dietary surveys in Far Eastern countries. In 1952, the U. S. Department of Agriculture published Handbook No. 34, *Composition of Foods Used in Far Eastern Countries* (12), to meet this need.

Organization of the U. S. Department of Agriculture

Thus Bulletin 28, first prepared in 1896, followed the early words of Atwater "until it shall in turn be replaced by a larger and more complete compilation" and was replaced in 1940 by Circular 549 (8), in 1945 by Miscellaneous Pub. 572 (9), and in 1950 by Handbook No. 8 (10). All this has been the work of the U. S. Department of Agriculture, first through the Office of Experiment Stations and then through the Office of Home Economics which was established in 1915 under the supervision of Dr. Charles F. Langworthy who had been in charge of the Washington Office of Experiment Stations and had worked closely with Atwater. The Office of Home Economics accepted responsibility for research in nutrition along with other activities. In 1923, the U. S. Department of Agriculture was reorganized and the Bureau of Home Economics was formed, with Dr. Louise Stanley as Chief and scientific research in home economics as its primary function. "Laboratory research was along the lines of (1) composition of

food materials (2) vitamin studies (3) dietary studies and (4) food utilization" (13). Dr. Stanley served as Chief until 1943, when the Bureau of Home Economics changed its name to Bureau of Human Nutrition and Home Economics. Dr. Henry C. Sherman succeeded Dr. Stanley as Chief until June 30, 1944, when Dr. Hazel K. Stiebeling took over. She continues today to guide its program of research and services. The former Bureau is now the Institute of Home Economics with Dr. Stiebeling as Director.

Along with its own laboratory research, the Bureau—now the Institute—has, since its formation, collected world-wide data on food composition and at appropriate intervals compiled those data, not only into the replacements for Bulletin 28 but into other circulars and reports which supplemented the major publications of food composition tables. These supplementary publications began in 1926 with Circular 389 (5) on beef composition. Others followed: Circular 50 on fresh fruits in 1928 (6), Circular 146 in 1931 on fresh vegetables (7), and Circular 205 on the iron content of vegetables and fruits in 1932 (14).

Circular 549 (8), which replaced Bulletin 28, contained no vitamin values. With increasing accumulation of data on vitamin content of foods, two bulletins were published in 1942—Circular 638 (15) and Miscellaneous Pub. 505 (16)—and these data were later incorporated in Miscellaneous Pub. 572 in 1945 (9), which was then the newest replacement of Bulletin 28. Then, in 1948, Miscellaneous Pub. 628 made available much new information on *Vitamin and Mineral Content of Certain Foods as Affected by Home Preparation* (17) which, along with other data, gave a comprehensive table of vitamins and minerals in twenty common foods raw and cooked in a variety of ways.

Microbiologic assay methods also made possible reliable assays of the folic acid and pantothenic acid content of foods. Thus, in 1951 and 1956, were published data on these vitamins (18, 19), based on work of the Home Economics Division of the U. S. Department of Agriculture.

Caloric Factors

Handbook No. 8 (10) aroused many questions because caloric values of food had been calculated by a modification of the procedure that had been used for the preceding fifty years. Atwater and Bryant in their investigations (20) on fuel value of foods with correction for digestibility, or availability, concluded that for average mixed diets as used in this country, caloric values of 4, 8.9, and 4 per gram for protein, fat, and carbohydrate respectively were acceptable. In developing these factors, Atwater and Bryant have also shown that for specific foods or food groups, these caloric values did not hold. Subsequently, these factors, rounded to 4, 9, and 4, came into general use and were applied to protein, fat, and carbohydrates in individual foods. In Handbook No. 8, the more specific caloric factors were used, because this is important in dealing with obesity, undernutrition, and some problems of normal nutrition. Also, it had been found during and following World War II that the use of the general caloric factors led to error when used in calculations for diets different from those in this country. Therefore, in 1955 Handbook No. 74, *Energy Value of Foods—Basis and Derivation* (21), was published to explain the specific caloric factors for different foods and to provide a compilation of human digestibility experiments and available energy from plant foods.

Tables on Amino Acids and Fatty Acids

All tables of food composition give values for total protein, yet we have long known that proteins differ in their amino acid content. Willcock and Hopkins showed (22) that tryptophan was an indispensable amino acid absent in zein, and the long series of studies by Osborne and Mendel clearly showed that specific amino acids are limiting factors in the nutritive value of proteins. The need for tables of amino acid content of foods has long been recognized. However, only in the last decade or so have new and less time-consuming methods of amino acid analysis been available, making possible the accumulation of data on amino acids in food. Report No. 4, *Amino Acid Content of Foods* (23), was published in 1957 and provides data on the average, maximum, and minimum amino acid values in grams per gram of total nitrogen in the edible portion of the food, for the eighteen most frequently occurring amino acids. A table also gives the average of each amino acid in grams per 100 gm. edible portion.

Within the last few years, much attention has been devoted to the fatty acid content of fats, and to meet the need for such information, especially in studies of atherosclerosis, a new table has been published this past year, Report No. 7, *Fatty Acids in Food Fats* (24).

With thousands of reports of original data to be collected, evaluated, and weighted, averages to be computed for each nutrient and food, calculations to be made in terms of standard units, and all compiled into systematic tables, the production of a bulletin of food values is a Herculean task. New analytical methods and accumulation of data for newer nutrients and compilations of food values add to the complexity of the problem. In order that the development of these tables of food composition may be more easily followed and the most suitable tables selected by those working in this field, the chronologic listing of these bulletins of the Department of Agriculture follows:

1896—*The Chemical Composition of American Food Materials.* USDA Bull. No. 28; revised, 1899; reprinted, 1906 (1)
1926—*Proximate Composition of Beef.* USDA Circ. No. 389 (5)
1928—*Proximate Composition of Fresh Fruits.* USDA Circ. No. 50 (6)
1931—*Proximate Composition of Fresh Vegetables.* USDA Circ. No. 146 (7)
1932—*The Iron Content of Vegetables and Fruits.* USDA Circ. No. 205 (14)
1940—*Proximate Composition of American Food Materials.* USDA Circ. No. 549 (8)
1942—*Vitamin Values of Foods in Terms of Common Measures.* USDA Misc. Pub. 505 (16)
1942—*A Compilation of the Vitamin Values of Foods in Relation to Processing and Other Variants.* USDA Circ. No. 638 (15)
1945—*Tables of Food Composition in Terms of Eleven Nutrients.* USDA Misc. Pub. 572 (9)
1948—*Vitamin and Mineral Content of Certain Foods as Affected by Home Preparation.* USDA Misc. Pub. 628 (17)
1950—*Composition of Foods—Raw, Processed, Prepared.* USDA Agric. Handbook No. 8 (10)
1951—*Folic Acid Content of Foods.* USDA Agric. Handbook No. 29 (18)
1952—*Composition of Foods Used in Far Eastern Countries.* USDA Agric. Handbook No. 34 (12)
1955—*Energy Values of Foods—Basis and Derivation.* USDA Agric. Handbook No. 74 (21)
1956—*Pantothenic Acid in Foods.* USDA Agric. Handbook No. 97 (19)
1957—*Amino Acid Content of Foods.* USDA Home Econ. Research Rpt. No. 4 (23)
1959—*Fatty Acids in Food Fats.* USDA Home Econ. Research Rpt. No. 7 (24)

Non-Governmental Publications

To make food composition data readily accessible to students, textbooks on nutrition added tables of food values. This is well illustrated by Sherman's *Chemistry of Food and Nutrition* (25), the first edition of which appeared in 1911 and the eighth in 1952. The first edition reproduced data from Bulletin 28 and gave, in addition, a table of ash constituents compiled by Sherman from various sources. By the fourth edition (1932), a table had been added showing some sources of vitamins, the amount being indicated by zero to three pluses; by the sixth edition, USDA Circular 549 was the source of information on proximate composition and for the first time, quantitative values were given for vitamins A, B, C (ascorbic acid), and G (riboflavin) with data compiled from various sources. In the eighth edition, Sherman used Handbook No. 8 as his reference source. Many other textbooks in the intervening years have followed this practice of appending comprehensive tables of food composition. These have all used the U. S. Department of Agriculture's publications and Sherman's tables of mineral constituents as their basis, along with other analytical data available at the time of publication.

For the student of dietetics, Bulletin 28 was adapted by Mary Swartz Rose to provide *A Laboratory Handbook of Dietetics* in 1912 (26). Protein, fat, carbohydrate, and fuel values were presented for 1 gm., 1 oz., 1 lb., and a standard portion (100 calories) for all commonly used food materials. Ash constituents in percentage of edible food and in grams per 100 calories of edible food material were reprinted from Sherman's text. This laboratory handbook has gone through five editions, the last appearing in 1949.

There was a need for a more compact presentation that Rose's *Laboratory Handbook*, or Sherman's textbook, and for one supplying more data than was available in the current U. S. Department of Agriculture bulletin. Also, data were needed that were presented in terms of quantities of food as commonly eaten. In 1937, Bowes and Church first published *Food Values of Portions Commonly Served* (27). According to the authors, it was a quick practical set of food values for students of medicine, dentistry, dental hygiene, and public health nursing. The authors drew their data from U. S. Department of Agriculture bulletins, Sherman, and Rose, but they were presented in such a practical form that the publication's success was immediate. Two years later, the senior author rewrote and enlarged the booklet, adding much new data currently available. Mrs. Bowes has continued these revisions so that the eighth and last edition issued in 1956 (28) retains its eminence in the field as a quick, practical source of all available data on nutrients in terms of common servings. This last edition is based on Handbook No. 8, along with other sources.

Short Methods of Dietary Analysis

One other development of a practical form of food tables must be mentioned to round out our story. It is recognized that the usual procedure of calculating the nutritive value of a diet from tables of food composition assumes a greater degree of accuracy than is justified when one considers the wide variation in composition of any given food. Also, such dietary calculations are quite time-consuming. Several proposals have been made for short cuts in the methods of calculation for calories, protein, and fat (29, 30) and also for calcium, phosphorus, and iron (31) in the diet. A short method for calculating energy and ten nutrients in an Army Field Ration was proposed in 1943 (32), based on a method used in the Bureau of Home Economics.

A short method for dietary analysis which included data for four vitamins was developed by Donelson and Leichsenring in 1942 (33). In this plan, all foods were assigned a place in one of thirty groups of comparable nutritive value. The foods were those which occurred most commonly in a series of dietaries. Mean values were computed for each group with the figures for certain foods

weighted in accordance with the frequency with which they were included in dietaries. Statistical comparison of values obtained when diets were calculated by this short method and by the long method showed close agreement. Best results were obtained by the short method when used for computing foods in a mixed diet.

This short method of calculation was favorably received by dietitians and nutritionists, and, in 1945 a revision was prepared (34), incorporating new data from research laboratories and adding data for niacin, carbohydrate, and fat. A second revision was developed in 1951 (35) because new laboratory data were available and improvements in economic status and other factors had produced marked changes in food consumption habits. Handbook No. 8 (10) and Bowes and Church (28) were the sources of food values used in this second revision of the short method.

Bulletin 28, or more specifically, we should say Atwater and co-workers in the U. S. Department of Agriculture, met a need in 1896. Others in the Department, particularly in the Home Economics group, have continued this work, contributing many of the original analyses as well as the task of compilation.

This has been the story of the development of food tables in the United States. Therefore, no mention has been made of the excellent food tables prepared in recent years in many other countries to meet the needs of national groups with different food consumption habits.

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Paperbound Books on Food and Nutrition

Paperbound books have experienced a meteoric revival in recent years, and today of some 9,000 to 10,000 volumes issued annually, 900 to 1,000 fall into the paperbound category. What is their place in the literature on food, nutrition, and dietetics? What titles are available? Although titles in these fields (exclusive of cookbooks) make up only a small percentage of those issued annually, several are available. Some are excellent; others seem to be of questionable value. These include:

DIET TO SUIT YOURSELF. By Walter Ross. N. Y.: New American Library, 1954. Pp. 159. Price 25 cents. This book reports on dietary programs undertaken by the American Telephone and Telegraph Company for its employees. It is intended primarily for the person interested in reducing. The well balanced diet is emphasized, and "phony diets" are discussed, as well as eating after weight has been lost. Other topics covered are: diet for teenagers; diet during pregnancy; and dieting to gain weight.

EAT AND REDUCE. By Victor Lindlahr. N. Y.: Permabooks, 1948. Pp. 240. Price 35 cents. Lindlahr advocates a low-carbohydrate reducing diet. Sample menus range from 540 to 635 calories daily and include only ½ c. skim milk and no bread or butter. Little in the book is devoted to sound nutritional advice.

EVERYBODY'S BOOK OF MODERN DIET AND NUTRITION. Rev. ed. By Henrietta Fleck, Ph.D., and Elizabeth Munves, Ph.D. N. Y.: Dell Publishing Company, 1955. Pp. 320. Price 50 cents. Many topics are covered: feeding various family members, food purchasing and preparation, adapting menus to special dietary needs, food fads, as well as an excellent review of nutrition. A useful bibliography is included. Although intended primarily for the homemaker, this book would be useful to anyone as a reference on nutrition and diet.

FEEDING YOUR BABY AND CHILD. By Benjamin M. Spock, M.D., and Miriam E. Lowenberg, Ph.D. N. Y.: Pocket Books, Inc., 1956. Pp. 214. Price 25 cents. The authors begin with diet during pregnancy and continue through lactation, infancy, and childhood. Much emphasis is placed on the psychology of feeding children. Added helps are recipes and dietary modifications during illness.

FOOD AND YOU. By Edmund Sigurd Nasset. N. Y.: Barnes & Noble, Inc., 1958. Pp. 166. Price $1.25. This book is devoted primarily to chemical composition, function, and digestion of food. It touches briefly on practical dietary information and a weight-reducing diet. Food tables are included. The student who wants a reference book or the layman who desires more information on the chemistry and physiology of nutrition would find this book useful.

REDUCE WITH THE LOW CALORIE DIET. By Marvin Small. N. Y.: Pocket Books, Inc., 1953. Pp. 221. Price 25 cents. Most of this book is concerned with low-calorie recipes which will be of greatest interest to the reducer who likes to spend a great deal of time cooking. A drawback is that name brand ingredients are given for many recipes, without mentioning possible substitutions.

STOP DIETING! START LOSING! By Ruth West. N. Y.: Bantam Books, 1957. Pp. 186. Price 35 cents. De-calorized recipes are the main feature of this book. Special brands are specified for ingredients, and undue emphasis seems to be placed on special purpose foods. The two-day "Blitz Diet" of cottage cheese and fruit will cause 2 to 5 lb. loss, according to the text. There is little help with practical dietary planning. The book *is* readable, but its worth in terms of sound nutritional advice is open to question.

THE TEENAGE AGE DIET BOOK. By Ruth West. N. Y.: Bantam Books, 1958. Pp. 180. Price 35 cents. Another book featuring the breezy style of presentation with emphasis on de-calorized recipes and special purpose foods. One would question, especially, the value of this book to the teenager for whom availability, time, and cost may well be limiting factors. The ideas for parties and activities sound interesting, but "nutrition-wise," the book would have little value in achieving its purpose.—*Contributed by Emma Seifrit, Reading, Pennsylvania.*

Studying the Food Habits of the Elderly[1]

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BEFORE ANY degree of understanding can be attained regarding an older individual's current acceptance or rejection of food, the environment that determines his food habits must be considered. Consequently, our first consideration relates to the factors observed to be primary determinants of the food habits of elderly persons.

Second, a brief summary of information available from studies of food habits of selected groups in the United States will provide us with clues relating to gross adequacies and inadequacies reported in the diets of some elderly groups.

Finally, generalizations regarding present knowledge of the food habits of the elderly and considerations for future research will be made.

Factors Affecting Food Habits of the Aged

Choice of food is determined by economic, social, physiologic, and psychologic factors, individually or in combination. The degree to which one factor is dominant will depend, of course, on the circumstances of the individual. In most persons, many factors are of significance. Food habits represent an accumulation of attitudes and practices over time and in the shifting sands of changing environment. Dietary intakes are influenced by so many factors that any suggested list is likely to be incomplete. However, the following questions merit consideration:

(a) Does the present income permit the choice of an adequate diet? Has the individual's income decreased appreciably with retirement? Does this change in available money influence the person to make changes in food choice related to cost with indifference to nutritive contribution? Does economic insecurity breed fear and a hesitance to purchase necessary food?

(b) Where does the individual live? Is he one of the approximately 5 per cent of the elderly population under medical care or in custodial institutions? Or, does he still live alone and make his own decisions regarding food choice? Is he living with his children? In this regard, Grace Finnegan, Nutrition Consultant with the California Department of Public Health, has made an interesting observation (1). She reports that among the persons interviewed in the San Mateo study, many of the women felt that their eating habits had followed three different patterns. The first was controlled by their parents, the second by themselves as homemakers and parents, and the third (current in 1948) by their daughters or daughters-in-law with whom they were living. Other persons might, of course, have other alternatives for their third pattern, such as, that determined by the food service and total environment in the institution in which they were residing, or that of living alone after the children had married.

Does the person live alone? If he lives in one room without cooking facilities, he will have little control over what he eats, if his physical condition permits him to walk only the distance to the one near-by restaurant. Loneliness, too, is a major appetite depressant at any age. I am reminded of the old folk lore: "Old John would half-starve were there no woman to prepare his meals; old Nellie would starve if she had no one to share her cooking." Solitude cannot be ignored in studying the food habits of the elderly, and one cannot avoid asking where an elderly person lives and where and how he obtains food. These are among the questions that find some answer in the few "meals-on-wheels" programs now in operation.

(c) Does the individual find eating a painful experience because of deficient chewing surfaces? Has his choice of consistency in food been altering slowly over the years as his mouth has degenerated for lack of care? Would dietary intake become more adequate if the individual received effective dental care? No study has been found to give

[1]Presented at the National Health Forum, sponsored by the National Health Council, in Miami Beach, on March 15, 1960.

us helpful answers to this last question. There is a need to study the dietary intake of large groups of elderly individuals in need of dental care with follow-up studies after the dental care has been provided (2). It is to be hoped that the Kansas City Dental Project will eventually provide us with some answers. In October 1959, Lotskar reported (3): "It is not necessarily true that teeth are needed to maintain nutrition in all cases. There have been numerous cases seen in the clinic in which the lack of teeth apparently has no effect on maintaining weight or carrying on digestive processes satisfactorily. These patients appear healthy and well nourished and the insertion of full dentures is of questionable value. On the other hand, lack of a good masticating apparatus is severely felt in some cases. It seems to be a question of the adaptability of the individual, some getting along just as well without dentures, while others do not fare as well.

"The entire question of the possible improvement in nutrition of patients by the insertion of dentures is one which merits further study. In other words, is nutrition of an aged patient improved by dentures, and if so, how much is it improved? Can adequate nutrition be maintained by feeding a balanced diet of foods which require little or no mastication? Also to be considered is the morale factor. Although finely divided foods may contain all of the ingredients necessary for good nutrition, is this enough? The simple act of being able to chew and to taste familiar foods is one of the few pleasures remaining for the aged."

(d) Has the individual had long-established poor eating habits? We are becoming more aware of the need to establish patterns of sensible eating throughout the life span so that we eventually may face fewer problems of eating patterns that defy change and contribute little to health. The patterns of excesses should probably receive greater attention, especially in this country.

(e) Have dietary fads and prejudices influenced expenditures for useless products and hesitance to seek medical care for symptoms which the faddists describe as due to the lack of whatever their product contains? Much advertising copy today is directed toward the elderly in our population, with royal jelly, volcanic ash, vitamins, and minerals promising renewed vigor, long life, and freedom from suffering. It is likely that the elderly who become followers of the quacks have less confidence in the value of food and perhaps less money available for it, once the bills for the quick cures accumulate on a monthly basis.

(f) Does educational achievement affect food choice? The elderly today have had limited opportunity to receive sound nutritional information in organized educational efforts. However, it is of particular interest to note that Young and co-workers found (4) that educational level was of greater significance than income level in the choice of food of 1640 industrial workers from 250 companies in twenty-one major industrial and occupational categories. These employees were all sixty-four years of age! Those with the higher educational levels made better food choices than those with limited education.

These few questions and considerations reflect our need to appreciate that choice of food is determined by economic, social, physiologic, and psychologic factors. It is just as important to determine *why* specific food choices are made as it is to summarize food intake on particular days. The value of information gathered by surveys lies in the application of its findings. Food choices are not made without being influenced by a multiplicity of environmental factors.

Studies Reporting Food Habits

We have actually had limited opportunities to study the food habits of the elderly. In a negative way, we can assume the kinds of inadequacies inherent in the diets of persons who enter institutions in a state of poor nutrition. Chinn reports (5) that systematic observations of five hundred patients admitted to a hospital for long-term illness over a period of three years showed that undernutrition seriously impeded recovery in thirty-five instances. These patients were drawn for the most part from upper income brackets. Twenty more were obese to the extent that rehabilitation was handicapped. Even though loss of weight became paramount in the struggle for ultimate physical improvement, weight loss was an emotional threat to two-thirds of those who needed to reduce and the program had to be discontinued. This report suggests that among those of relatively high income, the extremes of undernutrition and overnutrition were handicaps to rehabilitation.

Goodman reports (6) that among the patients admitted to a nursing home in Cleveland, the most common underlying cause of malnutrition was poor lifetime eating habits. Many of his patients had been living alone, and their diets were inadequate, particularly in meat and citrus fruit. He did *not* find lack of money to be a frequent cause of malnutrition.

Numerous observations have been published regarding the nutritional status of the elderly when admitted to nursing homes. This information supplies the result but does not always contribute to our understanding of the causes. In preventive medicine, we seek ways of helping people to prevent the disasters of malnutrition rather than defining ways to describe the tragedies once they have occurred.

The second group of studies relate to efforts made

to determine eating habits of elderly persons living at home. The San Mateo study (7) is the largest of this type so far reported in the United States. It covered 577 persons over fifty years of age in supposedly good health and for the most part living in their own homes in San Mateo County, California. Of this group, only fifty men lived in the county home. Of the rest, who lived in their own homes, about 75 per cent were economically comfortable, 6 per cent were in higher income brackets, and 19 per cent were on relief and old age assistance rolls. A trend toward decrease in intake of protein and iron with age was apparent. Morgan reports (7): "Thus, aside from calories and calorie-tied vitamin deficits, ascorbic acid and calcium are the nutrients in which the diets of both men and women are most likely to be low. Foods which supply the missing items are numerous and variable: milk, fruits, green and yellow vegetables being the most prominent."

The study by Lyons and Trulson indicates (8) how difficult it is to obtain information on a representative sample of older people. In order to obtain a sample of 100 persons, 786 persons were contacted, that is, only 13 per cent of those contacted were actually interviewed. The types of bias that then enter the sample are quite obvious. How different were the food habits of persons who did not wish to become involved in this type of dietary interview? Approximately one-fourth of the group interviewed were consuming less than 75 per cent of the Recommended Dietary Allowances for calories, riboflavin, iron, and ascorbic acid. Milk, or its equivalent in cheese, and yellow and leafy green vegetables were the foods most often slighted by both men and women. Forty-eight per cent of the men and 57 per cent of the women were 10 per cent or more above their desirable weight. This sample represented persons drawn from a low-to-moderate-income area in Boston.

Cooperative studies (9-11) involving the State Agricultural Experiment Stations of the United States Department of Agriculture have provided valuable information regarding the eating habits of women in both the aging and the aged group. Food intakes of 2189 women in five North Central states (Iowa, Michigan, Missouri, Nebraska, and Wisconsin) ranging in age from thirty to more than ninety years were obtained. "A downward trend with age was apparent in mean intakes of food energy, protein, calcium, ascorbic acid and vitamin A. Mean values of most nutrients were definitely lower in the diets of groups of women 70 years old and older than they were in those of women in their 30's . . . For every increase of 10 years in age, the nutritive value of diets of Iowa women decreased, on the average, by about 85 Cal., 4 gm. of protein, 0.03 gm. of calcium, 1.4 mg. of ascorbic acid and 194 I.U. of vitamin A. The regression of intakes of food energy, protein, and calcium on age were significant . . . In general, the various food groups furnished about the same percentages of total food energy in dietaries of the older women as in those of the younger. The two exceptions were meat, fish, and poultry (a less important source of energy in diets of older women than in those of younger) and cereal products (a more important source in diets of older women)" (11).

In summarizing the South Dakota study (12), it appears that "these women need to recognize their chief dietary problem—eating foods low enough in calories to prevent weight gains but providing an adequate supply of all essential nutrients. It becomes necessary to see that every calorie of food energy in meals or snacks be accompanied by other nutrients."

Ohlson *et al.* have reported (13-15) on 136 women between thirty and eighty-five years of age: "The fact that more than a third of the subjects were overweight might suggest that caloric intakes, at least, are higher than required . . . Reduced caloric intakes without attention to selection of nutrients may be the key to understanding many cases of nutritional instability. It also is suggested that the period 40-70 represents a time of metabolic stress for many adult women and that dietary instruction must be as individualistic as medical care if the nutritional reserves of the women are to be protected." Ohlson further reports, "It was elected to study the aging rather than the aged since it seems probable that the role of nutrition in the health of the adult may be in the delay of those cellular changes which are found in old age."

The regional studies have pointed up the particular need to appreciate that, as emphasis is put on weight control among our middle-aged population, it is imperative that diets restricted in calories offer adequate amounts of all nutrients to meet human needs. It is certainly undesirable to recommend weight control to prevent some health problems, while permitting our middle-aged citizens to accept diets so inadequate that new health hazards may occur.

In summary, we actually have limited information on the eating habits of the elderly when one considers all citizens in the United States as our universe for sampling purposes. Information is gained from small groups of persons who are able and willing to cooperate in the studies. What about the non-participants?

Research Needs for the Future

Because food habits as observed at any age represent the sum of influences over time, it would be desirable to plan now for longitudinal studies in nutrition so that the effects of dietary habits throughout life might be studied in relation to the

eating patterns in old age. At present, we must be satisfied with cross-sectional studies. We are looking at only one frame of a motion picture, one instant in a long life. To do longitudinal studies in the area of food habits, we must develop a valid and reliable method to obtain dietary information as quickly and as cheaply as possible. Our basic problem is one of developing a methodology that can be applied to large population samples with reasonable cost. Many of our tools are necessarily cumbersome and are not applicable to the study of large groups over time. The National Institutes of Health are supporting a small team at the School of Public Health, University of Michigan, who are attempting to determine whether we can develop a means of obtaining information regarding food habits over time. Studies of many diseases and certainly definitive answers to the question posed today must wait until we can take a long look at dietary intakes of individuals against the backdrop of many years of an ever-changing environment.

Summary

Although the nutritional requirements of the elderly are the same or very similar to those of younger adults, except for calories, the diets of the aged are prone to be deficient for reasons both external and internal. "Unlike any other branch of biologic science, nutrition is the province of every man. Everyone eats, and therefore, is an expert on the subject. Here is a process essential to life, which is connected with deep emotional urges and needs, which is carried out in a social setting, and which is dependent both on Nature and on Man. No wonder that there is a fabulous mixture of ignorance and knowledge in matters nutritional" (16).

As we recognize the complexity of factors that influence an individual's choice of food, so we must seriously consider the need for increased inter-disciplinary study of nutrition in the elderly. The problems which account for less than adequate nutrition are many; work toward their solution will require a blending of the sciences, arts, and skills of all who can contribute to the goal of good nutrition during the years prior to those described as "old age."

Dr. Fredrick J. Stare has summarized the role of prevention in discussing nutritional problems of advancing age (17): "Physicians and others respond best to disability, disease, deficiency, and distress. We must learn to respond equally well to prevention, protection, preservation, and the improvement of health, both personal and public, for these are the principles which if applied *prior* to advancing age will make that period healthier and happier. And here proper nutrition is of most importance."

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For low-caloric diets, sweeten fruit cups with small amount of vanilla. The result is an intriguing flavor, with no additional calories added. According to the Fresh Fruit and Vegetable Association, this is a trick which has been used by European chefs for many years.

An Experiment in Community Relations

Dial-A-Dietitian

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THE RINGING of a telephone on October 1, 1958, launched a project in public relations and community service for members of the Detroit Dietetic Association. By dialing a telephone number from 10 A. M. to 12 noon, Monday through Friday, Detroiters could have their questions concerning normal nutrition referred to members of the Detroit Dietetic Association for an answer.

The objectives of this project were threefold. First, the Nutrition Bureau would seem to provide an opportunity for the Association to facilitate "grass roots" nutrition education and to combat food misinformation. Second, the Association would be offering a unique service to the community. Third, the service would be an excellent vehicle for publicity, as well as an avenue of communication between the lay public and our profession. This last objective was seen as facilitating the recruiting program of the Association.

Preparatory Planning

Converting the Bureau from a paper project to a working plan involved a year of exploration. One of our concerns was the attitude of other agencies toward such a project. Our initial step was to assess the reaction of The American Dietetic Association. After receiving encouragement from the national organization, a working committee was established. This committee was composed of members of the Detroit Association who represented various agencies employing dietitians and nutritionists. Another member of this group was a physiologic chemist from the Wayne State University College of Medicine.

One of the major tasks of this committee was to decide on a "modus operandi" for the service. Were the questions to be answered by telephone or by correspondence? After careful deliberation, a telephone-answering service seemed most feasible. This choice was based on the rationale that the use of a telephone service would involve: (a) less motivation than letter-writing, (b) less time lapse for giving an answer, (c) more opportunity for clarification of questions, (d) more personal contact, and (e) fewer legal implications. The committee advocated the use of pseudonyms in answering questions, which would serve to identify the answer with the Association rather than with an individual. Five pseudonyms, one for each day of the week, were incorporated into the service policies.

A major accomplishment of the committee was the formulation of a working definition of "normal nutrition" which was to be used as a screening device to determine answerable questions. Requests for therapeutic dietary prescriptions were to receive medical referrals. However, questions regarding preparation, purchasing, and selection of specific foods for therapeutic diets were deemed answerable. Requests for detailed dietary instructions or clarification of diets were to be referred back to the physician. The caller was to be made aware that the Visiting Nurse Association's Nutrition Service could provide such instruction to the patient in the home.

The committee approved resource material and referral agencies and agreed to serve as a nucleus of resource people and an evaluation committee. A small sub-committee was appointed to investigate the legal, medical, and financial implications of the project, after approval of the policies and procedures by the membership of the local association.

The various screening devices concerning answerable questions were instrumental in obtaining the support of the local medical association. Legally, it was found there was no serious risk of liability, since questions were to be answered in the name of a nonprofit organization, rather than an individual.

The financial aspects of the service proved to be the next hurdle. The cost of the telephone-answering service was beyond our limited funds.[1] Because of

[1]Actual operating costs per month are $15 for the answering service, $7.70 per month for telephone service, and an average of $5 monthly for miscellaneous charges.

the teaching, research, and service implications of the project, the Merrill-Palmer Institute was interested in our pioneering efforts. The Institute, a specialized educational institution for the study of human development and family life at the college level, is not only sensitive to community needs but also provides services to fulfill these needs. By offering to assume half of the financial responsibility for one year,[2] the Merrill-Palmer Institute was instrumental in launching the service.

Organizational Pattern

"Dial-a-Dietitian," as it now operates, is under the supervision of a Nutrition Bureau chairman appointed by the President of the Detroit Dietetic Association. Her responsibilities include scheduling members, supplying the telephone-answering service with information blanks, and maintaining records. She makes monthly reports to the Association and participates in the evaluation meeting with the advisory board.

Participation by the membership is limited to one day every three months. The questions are recorded in duplicate by the telephone operator at the answering service, with the caller's name, address, and telephone number on blanks provided by the organization. The association member assigned for that day picks up one copy of the recorded questions and returns the call with the information requested as soon as possible, preferably within 24 to 48 hr. The member records a résumé of her answer and mails this copy to the Nutrition Bureau chairman in the envelope provided. The chairman checks this completed information sheet against that forwarded to her by the answering service to assure continuity of service.

Public Response

Constant publicity has proved a necessity for utilization of the service by the public. The call load can be directly correlated with the appearance of newspaper articles and spot radio announcements. The Detroit papers have been extremely generous in helping to tell the story. Initially, the three large metropolitan dailies carried stories of the inauguration of service. The smaller community papers and house organs later devoted space to the project. The public service aspects of the project resulted in a request for a weekly series of articles on nutrition by one of our large metropolitan dailies, the Detroit *News*. These were written by members of the Association and were featured in the Sunday editions of the paper for ten consecutive weeks. One of the network radio stations dedicated the majority of one day's public service time to a "Salute to Dietitians."

TABLE 1 Questions asked of association members, classified according to general topic

TOPIC	NUMBER OF QUESTIONS
Therapeutics	266
Food values	212
Food preparation and sanitation	182
Referrals (to physicians and/or community agencies)	129
Normal nutrition	121
Food fads	72
Pediatrics	51
Resource materials	56
Food buying	34
Chemical additives	14
Miscellaneous	7
Total	1145

During the first nine months of operation, the service received 932 calls. This represented a total of 1145 questions (several were calls asking two or more questions). The questions were periodically analyzed and classified by a committee. Table 1 shows the distribution of questions by groups. Therapeutics, food values, food preparation, and sanitation questions led the list by a wide margin.

As might be expected, the questions were concentrated in a few topics. Within each group, the questions centered around four or five topics. In Table 2 (Therapeutics), it will be noted that questions about fat and cholesterol, sodium and salt, diabetes, ulcers, and heart disease totaled 150. All other questions within this category totaled only 116.

Table 3 (Food Values) shows an even greater concentration. Half of the 212 questions were concerned with the caloric or general nutritive value of foods (74 and 32, respectively).

Frequently, the dietitian who returned a call would find that the questioner really needed information and help quite different from that stated in the call. This could be ascertained only in a two-way conversation, such as this service offered. It also enabled members to encourage people to seek professional help when needed. For example:

Question: Does vitamin A have to be taken with vitamin D or can it be taken alone? I am allergic to vitamin D.

Member's comment: The individual has many allergies and sensitivities and has not seen a physician but is taking vitamins, etc., on the suggestion of friends and on the basis of newspaper articles, etc. Is concerned with self and has promised to take problem to a physician.

* * *

Question: What kinds of foods can a person with ulcers eat?

Member's comment: Actually, this call was a request for what to serve an elderly person with ulcers

[2]The Dairy Council of Detroit has generously assumed full financial responsibility for the project, effective July 1, 1960.

TABLE 2 Most frequently asked questions in therapeutics

TOPIC	NUMBER OF QUESTIONS
Cholesterol and fat	43
Sodium and salt	38
Diet questions on diabetes	31
Diet questions on ulcers	26
Diet questions on heart disease	12
Total of above groups	150
All other therapeutic questions	116

from a rest home who was to be visiting during the holidays.

* * *

Question: Please give me a salt-free diet for a heart patient.

Member's report: The person really wanted suggestions for making a salt-free diet more appetizing.

Follow-up

How many persons we referred to their doctors have really contacted them, no one knows. A few, though not many, are known to have contacted other agencies, such as the Visiting Nurse Association as a result of this service.

A follow-up postcard survey was made to learn what people thought of the service, how they learned about it, and whether they had previously known of the Detroit Dietetic Association.

Of 930 cards mailed, 270 were returned, (about a 29 per cent return). Of this number responding, 219 replied "yes" to the question: "Was service satisfactory?" Only 49 replied "no." The reasons listed for the unsatisfactory service were largely that they had failed to receive a telephone reply from the dietitian, or that the dietitian had said that the service did not give out special diets—instead she had referred them to their physician.

In reply to the question "How did you hear about the service?" the following was indicated: newspaper, 203; radio, 31; other people, 16; two of these combined, 9. Thirty-one replies indicated that they had previously known of the Association; 239 had not. Making people aware of our profession has been one result of the service.

Comments made as to satisfaction with the service are of interest:

The most satisfactory reply I have ever received from *any* source.

* * *

Your help was invaluable to me. The kindness of the young woman to whom I spoke was very much appreciated. Thank you!

* * *

I was glad to receive your card to learn that this service is continuing. I thought it was just a few weeks' affair.

* * *

My questions were answered thoroughly and more extensively than my own doctor could answer them.

TABLE 3 Most frequently asked questions on food values

TOPIC	NUMBER OF QUESTIONS
Calories in foods	74
Nutritive values in general	32
Minerals in foods	12
Cholesterol and/or fat in foods	12
Losses in food preparation	11
Sodium and/or salt in foods	9
Vitamins in foods	8
Carbohydrate content of foods	5
Protein content of foods	5
Total of above groups	168
All other food value questions	44

Your service is especially valuable to any of us who want to get facts and to dispel fads and fallacies that are so common in the area of food and nutrition. I appreciate the service and hope it continues.

* * *

We are very grateful for this service. I think it is a wonderful thing to have in the community.

* * *

I would like to be informed on any talks that are about diet.

* * *

The service was excellent. I was also referred to another helpful organization, and in turn gave the information to interested friends.

* * *

It's good to rely on a dependable service, so as not to waste time and money on useless products.

Summary

A telephone-answering service offered to the public by the Detroit Dietetic Association is described. The service was started for the purpose of answering questions about foods and nutrition which people might have.

A telephone service rather than one based on correspondence has these advantages: (a) opportunity for verbal exchange to clarify and extend questions and answers; (b) ease of use for both caller and responder; and (c) value of person-to-person contact.

The service has proved to be of value to the members of the Association in several ways: (a) continuing education; (b) professional satisfaction in being of service to people; (c) concrete information as to the concerns and needs of lay people for nutritional information; (d) seeing the need to do more for lay people; and (e) greater awareness of community agencies and resources.

The service has promoted better public relations by making the general public aware of the profession of dietetics. Other professional groups appear to be using local dietitians and nutritionists as resource people for referral on nutritional problems more frequently. We believe this project will also facilitate a close working relationship with the medical profession.

Behavioral Factors in Nutrition Education

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OUR PURPOSE IS to discuss with you some of the behavior factors which need to be considered in dietary education and to invite your attention to ways of applying these factors in analyzing educational problems.

Conditions favorable to education need to exist or need to be developed before positive education is likely to occur. If the situation is not conducive to positive learning, the educator may need to put primary effort into finding or developing effective ways of improving the educational climate, so that effective approaches can be employed.

Barriers Which May Prevent Teaching

In actual situations, barriers beyond the direct control of the teacher often influence the nature of the teaching situation and limit the possibility of applying sound principles and techniques. The teacher may not be in a position to control the educational situation; he may be unable to determine either the timing of the education or the nature of the educational experience. It may, in fact, be impossible for him to determine what education is needed before the student or patient is exposed to negative experiences.

Much interest has been expressed in social science and its contribution to the profession of dietetics. Less has been said about the contribution of nutrition to social science. Each of the social science investigators who has worked in the nutrition area has brought back to his discipline new research and theoretical approaches, new tools and concepts, and new ways of looking at social groups. The stimulus for the investigation reported in this and the following papers grew out of discussions concerned with a mutual interest in communication and interaction in institutional settings, of which the hospital may be illustrative. The present explorations have opened new and challenging vistas for the authors, and hopefully others, to explore.

Administrative and communication barriers often stand between the dietitian and the patient. The dietitian does not always see the patient before he makes complaints about the food he has received. Her first contact with the patient may be in the unfortunate role of trouble-shooter, or it may occur after he has been exposed to negative influences which are difficult to overcome.

There is often a breakdown in planning, administration, or communication. The dietitian may lack direct responsibility. As a staff member, however, she may still be able to alert other staff members to the importance of the problem and to find with them, through analysis of the situation, effective ways to bring about improvements.

A systematic staff review of the way information flows from the doctor to the patient and to the dietitian may help to identify those in the chain of communication who are in the best position to speed up the process. Through discussions with key persons on an individual or staff basis, it may be possible to identify the reasons for failure. The dietitian may find it valuable to determine to what degree a failure in communication is related to attitudes of the staff toward dietary education. Are they convinced of its value? Do they appreciate the need for speedy communication? Do they see how they, as members of the team, will profit from any improvements made?

When an objective analysis of the breakdown in communication or administration identifies specific weaknesses, the dietitian may find it necessary to allocate a greater portion of her effort toward gaining the support of other members of the staff in developing more effective relationships. Until the essential communication within the staff itself is effective, the patient's education will continue to suffer.

The Purpose of Techniques

A tool is a means to an end. Accordingly, an educational tool ought to be selected only after educational needs have been determined and a purpose is specifically defined. This is essential to avoid the dilemma created when tools determine goals.

Success in the selection and use of educational techniques depends largely on the educator's ability to analyze the problem considering both the concerns, wants, and interests of the patient and the

nature of the specific informational content required. Once an adequate analysis has been made, the educator can then select techniques with a view to satisfying the identified needs.

We sometimes forget that the use of tools by an educator does not differ too much from the use of tools by a craftsman. Just as the craftsman selects a hammer, saw, or plane in terms of a specific task to be done, the effective educator decides to use the interview, discussion, demonstration, lecture, pamphlet, or poster after analyzing the problem and determining its specific educational requirements.

In making such an analysis, there is a tendency to think primarily in terms of the objective nature of the teaching situation, resources available, and the kind of information or content to be taught. For example, major attention may be devoted to the kind of diet, the types and amounts of food in the diet, how much time is available, what informational materials are available, and how long the patient will be in the hospital. Even more important, however, is an analysis of the dynamics of the situation: what the patient is concerned about, what the diet means to him in terms of his concern, whether he believes the diet is important, how he perceives the diet as related to his past eating practices, and as related to his recovery and continued health.

An architect in designing a home must, of course, be concerned with the nature of the landscape, the availability and cost of specific building materials, the weather conditions, the availability of water, electricity, gas and other utilities, labor costs, and so on. But his analysis in terms of such factors only tells him the limits of what he can do. The good architect also leans on a different kind of analysis to determine what is likely to be most satisfying to his client. He inquires about the size and structure of the family, the interests common to the family members and those unique to specific members of the family. He is concerned also about their customs and cultural interests, their habit patterns or ways of life. He is interested in the way of life of the neighborhood as well.

Groups that may appear on the surface to be very similar in composition may also differ from a dynamic point of view. There may be wide variation in terms of the concerns, interests, or attitudes of the members or in the amount of information they bring to the group itself. The members in the group may also differ in their reasons for participating; some may be eager to learn, others may feel indifferent to the meeting, and still others resent being put into the group situation. Two apparently similar groups are seldom likely to have the same pattern of underlying concerns or the same general orientation to the problem of the meeting. They may vary also in the nature and strength of their informal leadership. One group may take a cooperative approach to the solution of the problem; another, almost similar in apparent composition, may take an indifferent or even hostile approach to the problem or to the approach of the educator.

In view of this, the technique used successfully in one situation may "fall flat" in an apparently similar situation if the technique used has not been selected or developed with full consideration of the interests, concerns, and attitudes of the group.

The "Growing-Edge" of the Patient

It is extremely important that the technique or approach used in any educational situation be selected in terms of the "growing-edge" of the student—where he now stands in knowledge, attitudes, and behavior relative to the specific problem at hand. Allport has observed (1): "The target should always be the growing-edge of the student. It is true that at a given time no two students have precisely the same growing-edge. One has more knowledge than another; one has read the assigned textbook, another has not. The identical point made by a teacher may strike fire in one student and leave another cold."

This observation made about college teaching is of even greater importance when it comes to teaching adults. In a hospital situation, for example, each patient is likely to be unique in his knowledge about food, attitudes toward food planning and dieting, and in his eating habits. The teacher in this situation is likely to be even less acquainted than the college teacher with the background and experiences, interests and motivations the patient brings to the teaching situation.

Determining the nature of the growing-edge of adults we scarcely know is very difficult. Often we lack the time to find out. What exploration we can do must be done under the most trying of circumstances. Yet our success in selecting either content or method may depend wholly on the adequacy of whatever analysis we can make of the patient's knowledge, attitudes, and behavior.

It is becoming the practice today for dietitians to discuss with patients their eating habits and to try to fit the new diet into the practices that already exist. It has been recognized, as one educator put it, that it is easier to get a mother to add a carrot and onion to the daily potato soup than it is to get her to start making a new kind of vegetable soup.

In other words, it pays to determine the growing-edge of the patient in terms of the information he already has and the points of similarity between his present diet and the one to be learned. Knowing this, it is possible to focus the information provided more specifically in terms of the change necessary. The patient will then have less new information to learn and will be able to fit the new information more meaningfully into his current eating practices.

His eating habits will not be completely disrupted.

It is of even greater importance, however, to identify the growing-edge of the patient in terms of his concerns and attitudes. Until a patient recognizes the importance of diet, for example, no amount of information is likely to prove effective in motivating him to follow the diet voluntarily. It is not enough for the patient to be concerned about his illness. He must perceive and fully accept the fact that there is a direct relationship between what he eats and getting well, and between what he eats and staying well, before he is likely to adopt the new diet.

Diagnosing the Growing-Edge

If she is to focus her efforts effectively, the dietitian must first make a diagnosis to determine the nature of the patient's growing-edge. She needs to learn:

(a) Does Mr. Jones know why and how his food intake has been restricted? Does this seem reasonable to him? Does he know who is responsible? How does he feel about that?

(b) Does he recognize the relationship between following the diet and getting well? Does he really believe that eating the right kinds and amount of food will speed recovery—will help him to get well and to stay well?

(c) Does he recognize the relationship between continuing the diet after he leaves and staying well? Does he really believe this? Unless he really believes that he must continue to follow the diet to stay well and out of the hospital, he is likely to look on going home as one way of getting rid of the diet. He may even convince his wife that it is a useless headache.

(d) What does the diet mean to him? Does he grasp the broad principles of the diet or has he simplified it to everyday terms which actually mean something else? For example, if it is a bland diet, what is he interpreting a bland diet to mean—simply "soft foods"? If it is a low-sodium diet, what does that mean to him—simply "no salt"?

Interview Techniques

The chief technique available to the dietitian in making a diagnosis of a patient's educational needs is the quiet, attentive listening that is a part of a careful interview. It is well to come armed with some questions planned in advance to keep the discussion going on the problem at hand, and, insofar as possible, within the framework of the patient's experience. It pays to avoid questions that can be answered with a simple "yes" or "no." They do not help very much. It is too easy for a patient to answer such questions in terms of what he thinks you want and to avoid thereby giving you the information you most need.

It helps, in getting started, to ask indirect questions. Such questions put the patient more at ease and encourage free expression. For example, one might ask: "Why do some patients object so strongly to being put on a diet like this?" Or, "We had a patient a short time ago who complained to everyone when he was put on this diet. Why do you think he felt this way?" Or, "What do you think is the main reason he was given this kind of diet?" Or, "Just how would you describe the diet you are on to one of your friends?" Questions like these will help to identify problems that can then be discussed more directly.

Those who frequently make exploratory interviews of this type find it profitable to arm themselves with a memorized list of what might be called "non-directive probes." These are responses or questions that keep the patient talking on the subject without giving him too many hints about "right" or "wrong" answers. People tend to keep talking if they get some confirmation from the interviewer that he is really interested in listening. In psychology, this is called the "uh-huh phenomenon." Some of the probes I find most useful are: "Uh-huh." "How so?" "And then . . ." "So . . ." "Just what do you mean?" "Tell me a little more about that."

The dietitian may find it profitable to use some of these non-directive approaches in exploring with the patient his knowledge, attitudes, and beliefs about the diet. By this means, it may be possible to focus the educational approach more specifically in terms of the nature of his growing-edge. While it may not be possible to do this with every patient, an exploratory approach with a few patients may yield valuable insights.

Patients as Educators

Some of the most promising educational approaches are based on a recognition of the fact that students themselves are often the most effective educators.

Patients as students have a great capacity for helping one another. By sharing their experiences, they are often able to identify significant points that the teacher may have missed. They can frequently clarify for each other terms and concepts better than the teacher could possibly do by lecturing or answering questions. Together they are more likely than is the teacher to find meaningful solutions to the problems they face. They excel in findings ways to translate scientific knowledge or concepts into action.

Patients are often able to communicate with fellow patients far more effectively than the instructor. What one patient says may have personal meaning to another.

These developments are particularly likely to occur in discussions handled in such a way that the members of the group themselves have a primary role in selecting topics and in developing solutions. The best teacher in a group situation such as this is one who has the ability and the patience to guide

the discussion and to keep it moving but to avoid imposing himself or his own ideas on the group or answering all questions raised by the group. Such a role is one of leadership rather than lecturer.

The same kind of questions previously mentioned may be used as a basis for planning group interviews and group discussions. Similarly, indirect questions and non-directive probes are as useful in this situation as in the personal interview.

Applying New Knowledge

Whatever approach is used in dietary education, it must provide a means for the learner to integrate the new material or knowledge into his mental context and into his unique way of life. It is not enough to provide information alone. Few of us have the capacity or inclination to apply directly what we hear in lectures or read in books. It takes time and effort to fit new knowledge into present behavior patterns.

Not only must the patient understand and appreciate the importance of the diet for his continued well-being; he must, in addition, understand and appreciate the general principles of this diet and must find ways of adapting it so that it is easy for him to apply it in daily life. The dietitian can act as a sounding board for the patient, and in this way help him to test out the situations he will face after he leaves the hospital.

Talking through or acting out situations with the patient will help him to anticipate and become prepared to take the proper action when awkward situations arise. With such preparation, he is more likely to feel secure and confident of himself when faced with situations.

Educators as Students

As teachers, we sometimes forget that when we are learning new methods and techniques, we are personally subject to the same principles that apply with respect to our students or patients. Change in the way of acquiring and applying new approaches does not come easy. Try as we will, we find ourselves falling back into old practices and overlooking new principles that are fundamental to success.

Anyone who has been out of the classroom for a while and then returns has an almost irresistible urge to seek security behind the podium. This urge exists even though the person knows from other experience that group teaching may be more effective than lecturing. It will be difficult in this old familiar situation to throw the question back to the students for solution as might be done in an adult education group.

Trying to cast off old methods is like trying to throw away old boomerangs. You may think you are rid of them but they keep coming back.

Learning to apply new approaches or techniques that help us to maintain a closer relationship with the patient and that help us better to understand his attitudes and feelings requires practice as well as knowledge. It is not enough to read or hear about new techniques. All of us need practice in applying these new approaches before we can feel comfortable in using them. We also need practice in discarding the older, out-moded approaches. We must not expect too much of ourselves—too fast.

In adopting new methods, it is useful to try them out first with a familiar group or a friendly individual or two before using them in the work situation. One approach we use in improving our interviewing technique is to do dry-run interviews with other members of the staff or friends. We ask the other person to take the role of a patient with a particular condition and then try to develop the kind of interview that elicits the type of information needed. This role-playing interview helps us to sharpen up our questions and to identify other weaknesses. It also helps to give us confidence in interviewing when we start speaking to patients. After a few dry-runs, we know what kinds of answers to expect and what kinds of reactions the patient is likely to have to our questions. We also have a better understanding of the importance of waiting a long enough time between questions for him to think the question through before expecting a response.

The same technique can be applied with groups. By trying out a discussion on members of the staff, we can learn whether the questions are adequate to stimulate the discussion. We also get some feeling for the types of responses made and the kinds of issues that come up. This may give us suggestions for the types of resource people we need in the group. It also provides us with some experience in throwing the questions back to the group for further discussion. In this way we learn to step out of the traditional lecturer-student relationship and into one that results in greater participation.

Education involves maintaining a high degree of sensitivity toward attitudes, feelings, and perception of others. The most effective educational techniques are likely to be those which help the educator and student or patient to come to common understandings about problems and ways of adapting new knowledge to solve these problems. Until new knowledge is applied, the educational process is not fully effective. In brief, the techniques of education are likely to be most effective when they are oriented toward developing a closer and more dynamic union between the educator and the patient, for education to be effective must be a two-way process.

Reference

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A Pilot Study

Nutrition Education of Hospitalized Patients

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IN THE SPRING of 1959, an investigation was undertaken in a large West Coast medical center to explore some of the facets of the nutrition education of hospital patients. To narrow down a particular area for study, it was decided first to find out who was doing nutrition education.

Professional and non-professional staff of the hospital were interviewed, as well as a sampling of fifteen patients housed in one wing of a medical floor. These patients were selected because patients on this wing generally require special instructions for dietary modification. This does not imply, of course, that patients on normal or house diets do not need or receive information regarding nutrition.

A list of patients was compiled, giving their room and bed numbers, names, diagnoses, dietary orders, and physicians. During the week of the study, the patient population in the sampling group changed, as would be expected.

Interviews were held with: 2 student nurses, 2 nurse's aides, 6 staff nurses, 2 medical residents, 1 medical intern, 1 dietetic intern, 2 staff dietitians, I staff physician, and 15 patients—a total of 32 interviews. This did not represent every person who worked in the area, but was a very large representation. One significant problem centered around the difficulty of reaching some of the people involved.

The interviews were held with each staff person individually. Each was told the intent of the study, that is, to determine who was talking with the patients about their diets. Some of the hospital personnel had dealings with all patients and some with only one or two. The questions included:

(a) Did you talk with your patients about diet?

(b) Did you communicate with anyone else about the diets involved or the patients' comments?

(c) Did anyone communicate with you concerning the diet?

Responses from Hospital Personnel

The interviews varied significantly in time. Interviews with the dietitians occupied the longest time, from 40 to 60 min. Their comments generally were related to each individual and his food intake, and demonstrated a remarkable familiarity with the patients and their dietary orders. They all communicated primarily with the nurse and then with the patients. Channels of communication seldom included the doctor and seldom went directly to the patient. It appeared that the charge nurse, or her delegate, communicated pertinent information, including requests for visits. The dietitians did indicate a routine type of visit to patients, however, which was generally described as constituting an introduction, an explanation of the diet, and "How are things?" Discharge diets, they reported, are not given unless specifically ordered by the physician.

The nurse's aides both reported that any questions regarding diet or food were referred to the dietitian or the nurse. Sometimes they suggested that patients make such a request themselves; other times, they said they tell the nurse or send a slip to the dietary department. Their major function, in regard to food, appeared to be the dispensing of between-meal nourishments, and they noted that sometimes the things were not there when ordered. Both nurse's aides specifically commented that the food service was good and the patients liked everything. There appeared to be a positive attitude toward the dietary department.

The medical intern indicated a sincere interest in diet but commented that he felt his instruction and competence in this area was poor. Most of the time, he wrote a dietary order and had little if any verbal communication with anyone regarding it. He mentioned that at times he would give general instruction to patients. When asked about this, he described it as: "I tell them salt is bad for their heart. I say things that probably aren't true such as, 'salt is just a habit, easy to break; you'll get used to it.'" If patients complain bitterly and he heard about it, he might change the dietary order. When queried as to

what basis he used to make this decision, he admitted that if the patient wasn't too sick, he would change it. He mentioned that if patients were upset because of the diet, this might do more harm than the dietary alteration would do good. He expressed a need for assistance and education in this area and stated that he felt that it was very important in treatment. He was especially impressed with social and economic factors as well as cultural patterns and how they affect patient adjustment.

The medical residents were diffident, and it was extremely difficult to hold their interest. The interviews were very short, and they commented repeatedly on how busy they were and hurried because they didn't have time. One categorically stated that he told patients why they were on diets and then had the dietitian teach it. He said that the dietitian gave a copy of the diet to the patient. He generally wrote the dietary order and never spoke to anyone about it. When queried further, he merely gave similar answers and repeated his concern with the business at hand.

The other resident in medicine was also unimpressed with diet. He reported that the intern writes dietary orders. He never discussed diet with the nurses and only contacted dietitians when there was a complex dietary program to be worked out. (Interestingly, a dietitian had reported that this man had contacted her a few times on questions regarding food values.) He commented that he tried to order discharge diets a day ahead of time. When asked how he taught patients, he gave examples as, "Eat more . . . don't add salt." When specifically questioned about patients who were listed under his care, he reviewed their orders. Most of them, he casually mentioned, could eat anything as far as he was concerned. Two of these patients were on therapeutic diets. He did comment on having conferred with a dietitian regarding a patient with ulcerative colitis to determine what was available for this problem. He spoke about one patient as having been on a diet before and therefore needed no instruction.

The staff physician reported calling the dietitian about difficult or problem diets. Sometimes he had the house staff write orders or carry out this communication. He felt that there is a frequent possibility for error due to the many channels that orders must go through. He specifically commented that it is much easier to get a new diet ordered than to change an old one. He stated that he explains the reason for diet to his patients and feels that patients must be aware of diet. He accepts this responsibility or "the patient becomes angry at the dietitian instead of the doctor." He went into extensive detail regarding his two patients who were included in the study group and their dietary problems. One was on a diet largely to keep her happy, since he felt that she was neurotic and wanted it. He felt there was no particular need for it. When asked if he had discussed this problem with anyone else, he said no. He made no comment about any communications with the nurses about diet.

It is significant that, when discussing the inception of the study with one of the staff physicians, his concept of good communication was the writing of dietary discharge orders a day before hand. His impression of a dietitian was someone trying to teach a patient as the patient was in the elevator on his way out of the hospital.

The student nurses expressed concern over the food intake of their patients. Both students indicated that they had not communicated with anyone regarding the diet or the food intake but noted that when they observed problem situations in the past, they notified the head nurse and charted them. They did not indicate that any communication was needed or carried on with either the dietitian or physician in this regard.

The night nurse had little to do with anything concerning diet. She stated that the patients knew more about their diets than she did. When asked how she knew this, she answered that they told her. Asked who had given them this dietary information, she answered, "The doctor." She had no difficulty obtaining fluids or food she required for her patients in the evening hours. Asked if she had any contact with the patients' families during these times, in regard to diet, she said, "No."

Two nurses on the evening shift were interviewed. One said that she never did any teaching about diet. She observed that the patients knew their diet, and if any difficulty were encountered, she called the diet kitchen. This was apparently largely for food requests rather than information. The second evening nurse said that she occasionally explained simple diets, such as Sippy diets. When asked how she did this, she replied, "By telling the patient the foods he could have." There were few visitors on her shift, and she felt that most of them came during the day. As a result, she had no occasion to talk to them about diet. She stated that she had no communication with anyone, other than the limited amount indicated with patients, concerning nutrition teaching.

A member of the nursing school faculty initially maintained that she had nothing to offer. When questioned further, she commented, "Patients never know what they are supposed to get." She rather vehemently insisted that the students tell patients about the diet and that every time there is a dietary change, "I tell the student . . . to go in and tell the patient what to expect." She had never observed a doctor telling a patient about diet, and she did not mention the dietitian being involved. She had never talked with either the dietitian or doctor

about diet for patients. She commented that nourishments were frequently missing and when this occurred, she reviewed the procedure of sending slips to the kitchen so that students could take care of this. When asked if the head nurse received this information, she noted that she tried to avoid bothering the staff nurses and that she herself took care of this, or she had the students do it.

The day staff nurse worked with most of the patients in the sampling group. Her initial comments dealt with over-all patient food service. She had nothing but compliments about the food and about patient satisfaction. She noted that the dietitians were most helpful when patients were unhappy with their food. She indicated that she felt nurses were the go-betweens between the dietitians, doctors, and patients. When questioned about specific patients, she commented on one patient being particularly dissatisfied. He was upset because certain foods were repeatedly missing from his tray. When asked how he expressed this, she observed that he shouted at her and used comments as, "Hey you, come here!" She noted that if the dietitian would come around when the patients were eating, they would be able to pick up many notes.

The assistant head nurse saw her role largely as the center of communication between all factors. "Everyone checks with me." When asked why she thought this occurred, she commented, "Probably because I have the file of patient information." She noted that the dietitians were very helpful and that they visited the floor once daily. Patients with problems can be referred to the dietitian, and she also noted that on rounds she frequently picks up comments about food. Dietitians also visit patients to find out problems. The nurse seldom talks with patients regarding their diet, but she gave one instance of explaining a modified diet to a patient who particularly asked. She spoke of encouraging patients to eat. At meal time, she is frequently asked about late trays, "hold" trays, and whether patients can have something different than they received. For answers to these questions, she refers to the file or sends a slip to the dietitian. She finds dietitians helpful and feels they take care of dietary instruction. Her general attitude was one of approval towards the dietitian. She commented that often doctors forget to write diet discharge orders and the dietary department likes to have them a day ahead of time. She spoke of trying to remind doctors of this scheduling requirement. She was extremely cooperative in assisting with the appointment commitments of her staff and was always alert to the needs of people around her.

Patients' Responses

For the sake of convenience, one day was set aside to interview patients. To minimize the effect of patients asking personnel about the survey, these interviews were scheduled for the last day of the study. One problem encountered was that patients had difficulty in becoming oriented to the role of the investigator and were often giving information and making requests which normally belonged to the dietary department. It was also observed that in the four-bed rooms, patients communicated information back and forth. In most situations, the investigator attempted to conduct individual interviews with each patient. Sometimes this was taken out of her hands and shouted conversations took place with many suggestions from different sources being offered. Another problem was that some patients had just been admitted, and a few were hospitalized for only a short time for tests. Because some patients were asleep or out of their room, the entire area was not sampled.

The general summary indicated that of the fifteen patients interviewed, no one had talked to seven of them about diet; one said her physician at home had given her information and instructions about her diet; three indicated that the dietitan had visited and instructed them; and for four, the dietitian had talked with them and their doctors had explained the reason for the dietary regimen. Almost all of the interviews began with a statement that the food was good and the diet okay. If the interview could be carried on, almost inevitably, however, comments would be offered regarding foods they wanted or had not received. There was a good deal of sharing of dietary information in the rooms. Some patients actually demonstrated incorrect information regarding the diet they were on. (Asked about diet, one patient said, of course, he had been taught and proceeded to discuss a diet completely different from the one prescribed according to the chart.) In another situation, the patient was on a high-calorie diet; his bedside stand was piled high with an accumulation of cookies and bananas which carried dates of several days previous. When asked if he had difficulty eating them, he said, "Oh no," and then asked why he couldn't have a particular variety of grilled cheese sandwich. He had a poor idea of what he could have and no idea of why or how. He insisted that the dietitians had been in many times but gave the interviewer much information to convey to them.

A third patient had been taught several diets, both as a hospital patient on several previous admissions and as a clinic patient. She repeated many facets of her diet as well as her husband's diet and concluded with statements regarding a low-fat diet and how helpful mineral oil dressing was in adding flavor. She seemed completely sure of herself and gave information to her roommates with the greatest of ease and on little prompting. When conversing with another patient in the room, she wanted to be

sure that the other patient gave all her complaints. When others gave none, she insisted that they had received foods they didn't want and they should tell me about it.

The only instruction one patient had received regarding her low-sodium diet was on an instruction sheet included with a salt substitute she had purchased before admission to the hospital. She was eager for information and wanted practical suggestions for managing her diet at home. She had no idea why she was on the diet but didn't seem to think it was important enough to ask about. Her major concern was how she was to cook the food for her own diet and also her family.

Another patient has been on several types of test diets and was extremely bitter and quite hostile. She required repeated explanation of the purpose of the study and the role and function of the investigator. She then gave a detailed description of her complex medical history and her multitude of diets. She indicated her ability to manage her diet more effectively and in a more flexible fashion at home. She was very angry that no one had informed her about changes in her diets or the reason for them. She described her reaction to the latest diet as, "It was a low blow." From the conversation, she demonstrated a high degree of competence in the area of nutrition.

A woman on a regular diet revealed that her doctor had suggested she omit foods she disliked but otherwise to eat anything she was offered. She commented that she had been cutting out high-carbohydrate foods, such as cake and sweets "to watch my calories." No one had talked with her about diet since her admission to the hospital.

None of the patients interviewed indicated that the nurses had given them information regarding diet. One or two commented that the nurses were wonderful or made general comments on how helpful everyone had been.

Conclusions and Implications

This study delineates some patterns of communication. It also points up the fact that the nurse, the doctor, and the dietitian, in addition to patients themselves, are contributing in various degrees and ways to the nutritional education of people. It yields some interesting clues to patients' concept of dietary instruction and who they think is doing it. It appeared, in most cases, that further information was either requested or needed by the patient.

In a period when society is making many changing demands on the health professions, it is well to evaluate both the contributions and expectations of the professions and society. Dietitians are among the newer members of the health professions. They have many job commitments, as is evident in the job description of the professionally qualified dietitian (1). It would seem that further investigation of nutritional education in hospitals would be indicated. It would be desirable to seek some of the patterns of communication which are effective. The end result would need to be standardized in some fashion to enable effective evaluation.

Since, in hospital situations especially, the physician is commonly accepted as the "captain of the team" (2), to know his expectations of the dietitian and of the patient would be of great value.

It might be justifiable, in a long-range study, to follow up patients at home, and/or to investigate nutritional education in a clinic setting, doctor's office, and at home.

The implications of such investigations would be multiple. It might be profitable to eliminate the endless repetition, a wasteful process, and elaborate the purposeful support. Educational programs in the health sciences might be implemented as regards nutrition. These are but a few of the more obvious end products of such an investigation. The ultimate result of such a study would be to produce a well nourished population. Patients who need dietary modification could utilize this tool of treatment more effectively.

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New Food Styles

In the U.S. today, we are in the throes of creating a set of food patterns which will protect the nutrition of all the members of the society, young and old, male and female, urban and rural, and yet adapt itself to the discrepancy between the food available and the amount of food and drink that a given individual needs. Some of the first attempts to do this, the careful invention of drinks and foods that will look and taste like other drinks and foods that have too many calories, but are guaranteed not to nourish, are rather sad and grim, in a world where half the population are desperately undernourished.

What we need are a whole new set of food styles, for breakfast, for the coffee break, for lunch, for midnight snacks, new ways of maintaining the warmth of human relationships through food given and received, or shared, which will fit the bountifulness of and the high quality of our food to the kinds of lives we lead today.—*Margaret Mead, Ph.D., speaking before the conference on "The Revolution in the American Diet" sponsored by The Melamine Council, February 16, 1960.*

Bacteria in Electronically Cooked Foods[1]

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THERE IS A growing interest in electronic cookery, relative to the possible application of accelerated cooking rates and their effect on food products. Since the electronic range cooks two to ten times faster than conventional ranges (1), it is important to know whether electronic cookery destroys bacteria at least as effectively as conventional cookery.

Causey and Fenton studied the effect of reheating on the bacterial count of frozen cooked vegetables and meat dishes (2), using an institutional dielectric oven and four conventional cooking methods (institutional oven, household oven, double boiler, and boiling water). They identified strains of bacilli and staphylococci and a strain of clostridium in these foods and found that, by all cooking methods, bacterial counts in the products were low both before and after reheating.

The purpose of this study was a quantitative comparison of the destruction, by electronic and conventional cooking, of several bacterial species artificially inoculated into foods. The following foods and bacterial combinations were tested: baked custard inoculated with *Serratia marcescens, Staphylococcus aureus,* and *Bacillus cereus;* scrambled eggs inoculated with *Staphylococcus aureus* and *Bacillus cereus;* and ground beef patties inoculated with *Salmonella typhosa.*

Baked custard was chosen as the first vehicle for the experiments, since it is a food in which bacterial counts could be accurately estimated. In addition, the cooking time required was eight to nine times longer in the conventional oven than in the electronic range. Scrambled eggs were used because of the relatively short cooking time necessary in their preparation by both methods.

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Serratia marcescens was selected because of the ease in determining its presence by colony pigmentation and relative safety in handling. *Staphylococcus aureus* was used as an organism which might be of particular sanitary importance in such foods, and finally, *Bacillus cereus* was employed because of the high degree of resistance an organism with spores might be expected to show.

Experimental Procedures

The recipes for baked custard, scrambled eggs, and ground beef patties cooked in this study are found in Table 1.

CULTURES

All organisms for the inoculation of foods were grown in trypticase-soy broth at 37°C. The broth was inoculated from fresh nutrient agar plates.

TABLE 1 Recipes for baked custard, scrambled eggs, and ground beef patties.

INGREDIENT	AMOUNT
Baked Custard*	
Milk	550 gm.
Egg	163 gm.
Sugar	57 gm.
Salt	¼ tsp.
Vanilla	½ tsp.
Scrambled Eggs†	
Egg	768 gm.
Milk	244 gm.
Salt	1 tsp.
Fat (per serving)	1 tsp.
Ground Beef Patties‡	
Ground beef	1205 gm.
Salt	2¾ tsp.
Pepper	⅜ tsp.

*Yield: eight 90-gm. custards.
†Yield: sixteen 60-gm. servings.
‡Yield: sixteen 75-gm. patties.

Cultures of *Serratia marcescens*, *Staphylococcus aureus*, and *Salmonella typhosa* were incubated for 18 hr. *Bacillus cereus* was held for 120 hr. to allow sporulation.

Cultures were added to the appropriate food samples in the ratio of 1 part broth to 9 parts food mixture. After this, custard and scrambled eggs were thoroughly agitated with a rotary egg beater for 5 and 3 min., respectively. The ground beef was mixed with a pastry blender for 5 min.

Either 1-ml. or 1-gm. samples were taken for a determination of the number of organisms in foods prior to cooking. These were placed in sterile test tubes and stored at 4°C. until the cooking processes were completed.

COOKING PROCEDURES

A Tappan home model electronic range and two conventional stoves, a General Electric and a Roper gas, were used. All cooking for each procedure was done by one person to reduce subjective variables.

Baked Custard. Just prior to cooking, 90 gm. seeded raw custard mixture were weighed into each 5-oz. Pyrex custard cup.

Two custards were baked in the conventional gas range in hot (70°C.) water (level ¼ in. above the custard mixture) in a 1½-qt. Pyrex loaf pan at an oven temperature of 350°F. until set (no mixture adhered to a silver knife inserted in the center of the custard). Four custards were cooked simultaneously in the same oven.

In the electronic range, two custards were cooked in cool (22°C.) water (level ¼ in. above the custard mixture) in a 1½-qt. Pyrex loaf pan on the bottom-shelf position at high frequency. Only two custards were cooked at one time. The timer was set for 4 min., then reset, and the custards removed immediately from the water when they gave visible signs of doneness (just began to bubble up well around the entire surface).

Each cooked custard was allowed to cool uncovered at room temperature for approximately 30 min. until the sample for testing was taken. This procedure allowed the electronically cooked custards to continue to "cook" for some time after removal from the range and to cool somewhat before testing.

Scrambled eggs. Sixty ml. of the inoculated egg mixture were measured into a 100-ml. cylinder just before cooking.

A Pyrex skillet 4 in. in diameter was used for cooking the eggs on the conventional gas range. Using a thermostatically controlled burner, the burner was set for approximately 160°F. and the skillet allowed to heat until the flame cut off. The fas was added and allowed to melt and bubble, at which time the egg mixture was added from the cylinder. Timing was started at this point. The egg mixture was stirred constantly with a fork throughout the cooking period and was cooked to visible doneness (did not stick to the skillet when stirred).

In the electronic range, the eggs were cooked on the bottom-shelf position. The fat was heated for 1 min. on high frequency in a Pyrex pie dish 4 in. in diameter. The egg mixture was poured from the cylinder immediately (timing began at this point) and cooked on low frequency, stirring once with a fork near the end of the cooking period. Doneness was determined visually.

All servings of scrambled eggs were removed from the pan immediately when done and samples were taken.

Ground beef patties. Seventy-five-gm. balls of seeded ground beef were weighed and shaped into patties, between sheets of waxed paper, in a hamburger press. The patties were cooked four at a time, by both methods, to well done (meat browned throughout).

Using the small oven broiler of the conventional electric range, the patties, on a metal broiler rack, were placed approximately 4 in. below the broiler unit, and timing was begun as soon as the broiler coils were bright red. The total timing period included the time the patties cooked on the first and second sides plus the time required to turn them. The latter was included, since it was assumed that the meat continued to cook from internal heat during this short period.

The patties were cooked in the electronic range on a glass well-and-tree platter, especially designed for use in the electronic range, on the top-shelf position, using low frequency. The magnetron and browning units operated simultaneously (although the browning unit necessarily ran longer than the magnetron). The timing again included cooking on both sides plus the turning time, and the total cooking times for the magnetron unit and the browning unit are listed separately (Table 2).

Duplicate samples from the interior of each patty were weighed as soon as possible after cooking.

SAMPLING

After cooking, 1-gm. portions of each serving of the cooked foods were placed in sterile test tubes and both the raw and cooked samples were stored at −20°C. for a day, if they could not be cultured immediately. At this time, they were thawed for 10 min. in a 37°C. water bath and 9 ml. sterile 0.15 N sodium chloride were added to each tube.

For determination of organisms in custard and scrambled eggs, each sample was mixed vigorously with a sterile pipette. One-tenth-ml. portions of this suspension were placed in three sterile Petri dishes and melted nutrient agar added. All plates were incubated at room temperature for 48 hr.; the total colonies were counted, and gram stains were made of each colony type.

TABLE 2 Effect of electronic vs. conventional cookery on bacteria inoculated into baked custard, scrambled eggs, and ground beef patties

INOCULATION	NUMBER OF SAMPLES	COOKING TIMES		MEAN COLONY COUNT PER GRAM OR MILLILITER		
		Range	Mean	Raw sample	Inoculated organism	Other organisms
Baked Custard						
S. marcescens						
Raw custard	24	—	—	*	—	—
Electronic range†	12	3 min. 58 sec.—4 min. 50 sec.	4 min. 16½ sec.	—	negative	108
Conventional oven‡	12	34 min.—39 min.	36 min. 30 sec.	—	negative	108
S. aureus						
Raw custard	3	—	—	8.2×10^6	—	—
Electronic range†	4	4 min. 17 sec.—4 min. 27 sec.	4 min. 19 sec.	—	negative	150
Conventional oven‡	4	33 min.	33 min.	—	25	88
B. cereus						
Raw custard	2	—	—	2.4×10^4	—	—
Electronic range†	8	4 min. 27 sec.—5 min. 17 sec.	4 min. 51 sec.	—	62	#
Conventional oven‡	8	31 min.—34 min. 15 sec.	32 min. 57 sec.	—	25	#
Scrambled Eggs						
S. aureus						
Raw egg	3	—	—	3.9×10^6	—	—
Electronic range¶	8	35 sec.—40 sec.	37½ sec.	—	negative	50
Conventional stove‖	8	1 min. 10 sec.—3 min. 10 sec.	1 min. 39 sec.	—	12	63
B. cereus						
Raw egg	3	—	—	4.2×10^5	—	—
Electronic range¶	4	35 sec.	35 sec.	—	540	#
Conventional stove‖	4	1 min. 12 sec.	1 min. 12 sec.	—	985	#
Ground Beef Patties						
S. typhosa						
Raw ground beef	10	—	—	4.9×10^5	—	—
Electronic range**	16	(1) 2 min. 25 sec. (2) 3 min. 35 sec.	(1) 2 min. 25 sec. (2) 3 min. 35 sec.	—	negative	5
Conventional broiler††	16	7 min. 30 sec.	7 min. 30 sec.	—	negative	negative

*Trial experiment; exact colony count not made (too numerous to count accurately).
†Bottom-shelf position, high frequency.
‡Shelf slightly above middle of oven; temperature, 350°F.
#Not identified.
¶Bottom-shelf position, low frequency.
‖Thermostatically controlled surface unit at 160°F.
**Top-shelf position, low frequency. Magnetron and browning units operated simultaneously. (1) indicates time of magnetron unit operation; (2) indicates time browning unit operated.
††Conventional electric broiler; meat placed 4 to 5 in. below broiler coils.

The organisms in ground beef were counted after the cooked meat had been macerated and soaked in trypticase-soy broth for 24 hr. at 4°C. One-tenth-ml. portions of ten-fold dilutions of the extract were inoculated into EMB agar pour plates in duplicate. Counts were made after 24 hr. incubation at 37°C.

Results

The results of inoculation of custard with broth cultures of each of these bacterial species are presented in Table 2. They show that cooking in the electronic range for 4 to 5 min. was at least as effective in destroying *S. marcescens* and *S. aureus* as conventional baking for 30 to 40 min. Raw custard inoculated with a culture of *B. cereus* containing a large number of spores showed a sharp reduction in the number of organisms present when both cooking methods were employed.

The effectiveness of destruction of *S. aureus* and *B. cereus* in scrambled eggs is recorded in Table 2. When a large number of staphylococci per gram of food were inoculated, both the electronic and conventional cooking methods markedly reduced the total counts. However, the electronic range effectively eliminated *S. aureus*, whereas conventional cooking did not. Neither method proved completely effective in destroying the sporeformer *(B. cereus)*.

Results of cooking ground beef on *Salmonella typhosa* are shown in Table 2. Both ranges were effective in destroying 4.9×10^5 organisms per gram present, with the conventional stove cooking the food approximately twice as long as the electronic range.

Discussion

Both cooking methods were quite effective in de-

stroying non-sporeformers (100 per cent destruction by the electronic range); however, neither was effective in completely eliminating sporeformers, including the inoculated *B. cereus* and the other organisms identified in the cooked food samples, which were mainly gram-positive sporeformers. Some of the latter were undoubtedly introduced through airborne contamination after cooking, especially in baked custard which was allowed to cool uncovered at room temperature for approximately 30 min. before samples were taken. No quantitative estimate of these other organisms was attempted with foods inoculated with *B. cereus* because of their similarity to the test organism.

Electronic cookery resulted in complete destruction of the inoculated organism in four of the six combinations tested, as compared with complete destruction in two out of the six with conventional cookery. In addition, electronically cooked food contained more organisms than conventionally cooked food in only one sample group, custard inoculated with *B. cereus*, and this difference was not large. Therefore, it is concluded that electronic cookery is slightly more efficient than conventional cookery in bringing about the destruction of the bacterial species used in this study. The single exception was the sporeformer subjected to over 30 min. of conventional heat in baked custard.

The slight superiority of electronic cookery in effecting bacterial destruction in these foods was probably due to the instantaneous generation of heat throughout the food mass (up to a depth of 2 to 2½ in. [1]) by the high frequency radio waves. Thus, although electronic cooking times were one-half to one-ninth as long as comparable conventional cooking periods, the efficiency of bacterial destruction, as measured by bacterial counts in the cooked products, was greater when the electronic range was used.

Summary and Conclusion

The effect of electronic vs. conventional cooking on the destruction of four representative bacterial species artificially inoculated into three foods is compared. A home model electronic range and conventional gas and electric stoves were used for cooking. Food and bacterial combinations were: egg custard inoculated with *Serratia marcescens, Staphylococcus aureus,* and *Bacillus cereus;* scrambled eggs inoculated with *S. aureus* and *B. cereus;* and ground beef patties inoculated with *Salmonella typhosa.*

Although both cooking methods quite efficiently destroyed non-sporeformers, neither was effective in completely eliminating sporeformers. Electronic cookery produced 100 per cent destruction of the inoculated non-sporeformers in the four combinations tested, whereas conventional cookery resulted in complete destruction of these same organisms in only two of the four sample groups. Conventionally cooked food contained more of the inoculated organisms than electronically cooked food in five of the six combinations studied.

On the basis of these results, the following conclusion was drawn: Although requiring cooking periods one-half to one-ninth as long as comparable conventional methods, electronic cookery of the products in this study was slightly more efficient in destroying the bacterial species used, except for the sporeformer subjected to over 30 min. of conventional heating in baked custard.

The possible reason for this apparent slight advantage of the electronic range over conventional cooking methods is discussed. Furthermore, results of this study indicate that careful attention must be given continually to food sanitation procedures in using both cooking methods.

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Enriched Parboiled Rice

The Food and Drug Administration has changed the standard of identity for enriched parboiled rice to allow a small amount of butylated hydroxytoluene—a harmless chemical preservative—to be used as an optional ingredient. This chemical, which has been used for several years in other foods, such as breakfast cereals and shortenings, will assure better flavor, since it retards rancidity in parboiled rice.

Parboiled rice is whole rice that is steamed and vacuum-dried before milling. This process is intended to concentrate natural vitamins in the kernels before the hulls are removed. However, an undesirable flavor has occasionally developed through release of oils that may become rancid on exposure to air. The FDA believes the change in the standard is in the consumer interest.

Where the preservative is used, consumers will find the following required statement prominently displayed on the label of packages of "enriched parboiled rice": "Butylated hydroxytoluene added as a preservative." The amount used may not exceed 0.003 of 1 per cent by weight of the rice product.

A Study in Improving East Indian Diets

Nutritional Value of Fish Flour Supplements[1]

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NUTRITIONISTS, AWARE of the world need for animal protein of high biologic value, have recognized the sea as a potential source of such protein (1-3). The sea is abundant in fish; for example, the French Ministry of Fisheries has reported an annual harvest of 10,000 lb. fish meat per acre as compared with 190 lb. beef obtainable from 1 acre of pasture (4).

In the underdeveloped countries the lack of quick transportation and cold storage severely restricts the regular use of fresh fish in the human dietary. As a result, intense interest in developing methods for making fish flour from fresh fish, and for using the fish flour in the human diet has been steadily growing (5, 6).

Recently, a process for making odorless, stable fish flour of high biologic quality has been developed (7)[3], using fish of several species. The fish are desiccated, defatted, and deodorized by azeotropic solvent extraction. Sure studied (8) the effect on rat growth of adding small amounts of the defatted fish flour to milled wheat flour, corn meal, and rice. The resulting large body gains and increased protein efficiency were far superior to similar data obtained in the past by Sure with dried non-fat milk, dried butter milk, defatted soybean flour, brewer's yeast, cultured food yeasts, and peanut flour. Unfortunately, however, Sure fed his animals *ad libitum*, and the fish flour-supplemented groups always ate much more than the controls. Thus, his data on improved growth and better protein efficiency ratios due to fish flour supplementation may represent exaggerated values (9).

In India, where food production, including milk, is hardly able to meet the needs of the growing population (10), fish flour of high nutritional value might well improve the nation's health. Experiments were undertaken in this laboratory to study the nutritive value of samples of odorless, defatted fish flour. The purpose of this paper is to report on: (a) the biologic value of the protein of fish flour; (b) the effect on growth and protein efficiency of adding 1 to 3 per cent fish flour to East Indian diets; and (c) the consumer acceptance of the fish flour.

Experimental Procedure and Results

PROTEIN EVALUATION OF THE FISH FLOUR

The protein value of the fish flour was measured by a growth test and a nitrogen balance test. Results were compared with data on whole egg protein. Growing rats were used in both the experiments.

Proximate analysis of the fish flour sample gave 83.1 per cent protein (N $\times$ 6.25), 13.2 per cent ash, 0.4 per cent ether extract, 3.7 per cent moisture, and 4.14 calories gross energy per gram.

Two balanced diets, where the sources of protein were fish flour and whole egg powder, respectively, were formulated to contain 10 per cent protein. The percentage composition of the fish flour diet was: fish flour, 12.0; sucrose, 10.0; starch, 57.6; vitaminized cerelose, 5.0; corn oil, 3.0; lard, 5.0; cod-liver oil, 1.5; wheat germ oil, 0.5; wood flock, 2.0; and mineral mixture, 3.41. The composition of the egg diet was similar, except that the fish flour was replaced by 13.3 per cent of a laboratory-prepared dried and defatted whole egg, and contained 54.7 per cent starch and 5 per cent mineral mixture. Thus, these two diets were identical in composition except for the source of protein, and each contained 10 per cent protein by analysis.

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[3]The VioBin Corporation, Monticello, Illinois, which developed the method, supplied samples of fish flour and funds for this nutritional evaluation. The author is grateful to Ezra Levin for his valuable suggestions concerning the initiation and carrying out of this investigation.

EXPERIMENT 1: GROWTH TEST

Ten growing male rats (five on each diet) were individually housed and pair-fed equal amounts of the test diets for twenty-one days, according to Mitchell's method (11). During this period, the amount of food offered was gradually increased. At the end of twenty-one days, the rats were sacrificed and body weights minus intestinal contents recorded.

The results of the experiment (Table 1) show that the growth-promoting value of the fish flour protein was 91 per cent of that of the whole egg protein, and that the protein efficiency ratio, 3.236, was 90 per cent of that of the whole egg protein. Thus, the protein efficiency of fish flour was better than the reported values of 2.85 for skim milk (12) and of 3.15 for ox muscle (13).

EXPERIMENT 2: NITROGEN BALANCE TEST

A nitrogen balance test was then undertaken (14) because nitrogen retention, rather than growth, is a more accurate measure of protein function and also because compositions of live weight gains vary (15). Fish flour and whole egg diets, described elsewhere in the text, were used in this test also.

Ten growing male rats were pair-fed these diets for fourteen days. During the last seven days, individual excreta was collected. Samples of the test diets and excreta were analyzed for total nitrogen by the Kjeldahl-Wilfarth-Gunning method. Biologic values of the fish and egg proteins were computed.[4]

Results of the test (Table 1) demonstrate a high nutritive quality for the fish flour protein. The biologic value of 88 per cent was superior to that of meat, which is 78 per cent, and was comparable to the biologic value of 89 per cent for milk (16).

$$\text{Biologic value} = \frac{\text{nitrogen balance} + \text{endogenous urinary nitrogen} + \text{metabolic fecal nitrogen}}{\text{nitrogen intake} - \text{fecal nitrogen} + \text{metabolic fecal nitrogen}}$$

assuming nitrogen values of 0.50 mg. per gram body weight[3,4] for endogenous urinary nitrogen and 2 mg. per gram food intake for metabolic fecal nitrogen.

PROTEIN SUPPLEMENTING VALUE OF FISH FLOUR

A majority of India's population is in the low income group and consumes a diet consisting predominantly of cereals, small amounts of pulses (legumes), vegetables and fats, and almost negligible amounts of animal foods and dairy products (17).

The effect on growing rats of supplementing Indian diets with small quantities of fish flour was studied in this laboratory by the Mitchell method of equal food intake. Four Indian diets were formulated (Table 2 for composition); fish flour was added to the basal diets at the 1 and 3 per cent levels, respectively, at the expense of the cereal. The percentage of protein in the cereals and legumes used in the simulated-Indian diets was, by analysis, as follows: polished rice, 6.3; brown rice, 7.5; whole wheat flour, 15.9; enriched wheat flour, 11.0; yellow corn meal, 9.6; split pea, 27.2; and mung bean, 23.6.

In view of the tremendous variation in the dietary patterns, it is impossible to formulate practical diets exactly representing those used in several regions of India. The test diets (Table 2) are fair representatives of the diets used by the lower-middle and the lower-income groups in India. In spite of a possible deficiency of vitamins and minerals in the poor Indian diets, our test diets were balanced for these nutrients, as the main purpose of the study was to measure accurately the protein supplementing effect of fish flour on growth.

Seventy-two young growing male rats, six rats per treatment, were trio-fed equal amounts of the control and fish flour-supplemented diets for twenty-eight days. The animals were weighed weekly. Rats receiving supplemented diets consumed their diets avidly and appeared frisky and healthy. The results of the experiment are given in Table 3 and in Figures 1 to 4.

TABLE 1 **Nutritive value of fish flour protein**

DIET	MEAN DAILY FOOD CONSUMPTION	MEAN DAILY NITROGEN INTAKE	MEAN DAILY GROWTH	MEAN PROTEIN EFFICIENCY RATIO*	MEAN DAILY NITROGEN EXCRETION	NITROGEN BALANCE PER DAY	BIOLOGIC VALUE
			Experiment 1—Growth Test				
	gm.	*mg.*	*gm.*		*mg.*	*mg.*	*%*
Fish flour	9.1	159	2.95±0.101†	3.236±0.099†	—	—	—
Whole egg	9.1	150	3.25±0.071	3.565±0.082	—	—	—
			Experiment 2—Nitrogen Balance Test				
Fish flour	8.0	140	—	—	57	83	88±2.6†
Whole egg	8.0	132	—	—	35	97	97±1.9

*Grams body gain per gram protein intake.
†Standard deviation.

Discussion

These data clearly demonstrate that supplementation with fish flour markedly improved the nutritive value of these Indian-simulated diets. For example, in the case of the rice diet supplemented with 3 per cent fish flour, the increase in growth over that of the controls was 49 per cent at the end of one week, 41 per cent at the end of three weeks, and 45 per cent after four weeks. Similar beneficial effects of fish flour addition were observed in groups fed diets made up of whole wheat flour, enriched wheat flour, and mixed cereals. The growth promoting value of each of the basal diets was significantly improved ($P < .01$), even by 1 per cent fish flour supplementation. Gains were more significant ($P < .001$) in the 3 per cent-supplemented groups.

As the food intake (calories) of the control and supplemented groups was equalized in all treatments, the resulting greater body gains and higher protein efficiency ratios may be explained as due partly to the higher protein level of the diet resulting from the addition of protein-rich fish flour at the expense of the relatively protein-poor cereal, and partly to the better amino acid mixture. The remarkable increase in body gain per gram protein intake in all groups except those receiving the rice diets, however, can hardly be ascribed to increase of protein concentration in the supplemented diet, since adding fish flour raised the protein level of the diets very little (0.7 to 2.4 per cent).

At the 1 per cent supplementation level, there were large and significant increases in the protein efficiency ratios of the whole wheat diet (P approaching .01), the enriched wheat diet ($P<.01$), and the cereal diet ($P<.01$), with increases in body gain of 13, 76, and 25 per cent, respectively. When 3 per cent fish flour was added to the diets, gain per-gram-protein-eaten increased still further and increments in body weights ranged from 43 to 145 per cent. At the 1 per cent supplementation level, fish flour failed to improve the protein efficiency ratio of the rice diet, which is already high (3.22); however, at the 3 per cent level of supplementation, the ratio increased to 3.505 ($P = .05$).

The assumption that the nutritive value of the test diets is improved because of a better amino acid mixture consequent on fish flour addition and not because of raising the protein level of the diet is based on experimental evidence reported in the literature. During a study of the nutritive value of bread protein, Hutchinson *et al.* did not observe (18) any change in the protein efficiency ratio when they increased the bread protein level in the diet from 10.8 to 15.0 per cent. Osborne, Mendel, and Ferry also did not observe (19) a significant increase in the protein efficiency ratio when the wheat or barley protein level in the diet was increased from 8 to 10 per cent.

Increased efficiency of Indian diets due to fish flour supplementation emphasizes the need for good quality protein in practical nutrition, particularly during periods of food shortage. Data in Table 3 demonstrate that restricted amounts of diet are better utilized if properly balanced with respect to protein. In fact, restricted amounts of a balanced diet are better utilized than larger amounts of an unbalanced diet. Hamilton has shown (20) that for efficient food utilization, the need for dietary protein in proportion to the amount of food energy consumed is critical. But, the need for food energy is paramount in human nutrition (21); hence, an

TABLE 2 **Composition of experimental East Indian diets**

INGREDIENT	DIET											
	1	1A	1B	2	2A	2B	3	3A	3B	4	4A	4B
Polished rice (%)	36	35	33	—	—	—	—	—	—	13	12.8	12.4
Brown rice (%)	30	30	30	—	—	—	—	—	—	13	12.8	12.4
Whole wheat flour (%)	—	—	—	66	65	63	—	—	—	13	12.8	12.4
Enriched wheat flour (%)	—	—	—	—	—	—	63	62	60	13	12.8	12.4
Yellow whole grain corn meal (%)	—	—	—	—	—	—	—	—	—	13	12.8	12.4
Fish flour (%)	—	1	3	—	1	3	—	1	3	—	1	3
Yellow split pea* (%)	5	5	5	5	5	5	5	5	5	5	5	5
Mung bean (*Phaseolus aureus*) (%)	5	5	5	5	5	5	5	5	5	5	5	5
Peanut oil (%)	5	5	5	5	5	5	5	5	5	5	5	5
Sesame oil (%)	5	5	5	5	5	5	5	5	5	5	5	5
Cod-liver oil (%)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Wheat germ oil (%)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sugar (%)	2	2	2	2	2	2	2	2	2	2	2	2
Vitaminized cerelose (%)	5	5	5	5	5	5	5	5	5	5	5	5
Mineral mix 446 (%)	4	4	4	4	4	4	4	4	4	4	4	4
Sodium chloride (%)	1	1	1	1	1	1	1	1	1	1	1	1
Wood flock† (%)	—	—	—	—	—	—	3	3	3	1	1	1

*Packed and distributed by N. K. Hurst and Co., Indianapolis.
†Cellulose, sold by Brown Co., Chicago.

agricultural policy aimed at producing meat at the expense of total food energy would hardly be wise in the densely populated countries of Asia, because conversion of cultivatable crops into meat and dairy products is wasteful and unsuited to their agricultural economy. According to Mangelsdorf (22), one man working for one day on a modern wheat farm can produce enough food (in terms of calories) from 1 acre to feed himself for one year, while it takes 3 acres and forty days to produce the same amount of beans, and 20 acres and forty days to produce the same amount of beef. Thus, the provision of a cheap, good quality protein procured without sacrifice of cultivatable crops would be an ideal approach to combat general malnutrition.

Besides improving the protein quality, fish flour supplementation will also markedly increase the mineral content of the poor Indian diets, especially the rice diets which are deficient in calcium. Supplementation with 40 mg. calcium in the form of calcium lactate reportedly improved the growth-promoting value of the raw husked, raw undermilled (7 per cent polished), and raw milled rice (14 per cent polished) by 45.2, 30.9, and 37.7 per cent, respectively (23). Assuming that a person eats 20 oz. food a day, fish flour supplementation at a 3 per cent level would increase the calcium content of the Indian diet by 459 mg. As fish calcium is highly utilizable (24), 61 per cent of the calcium requirements of the child and of the adult could be supplied by the fish flour when added to the poor rice diet at a 3 per cent level.

Dietary surveys reveal widespread malnutrition in India (25). Particularly of importance is kwashiorkor (protein malnutrition syndrome) which is observed among malnourished children of poorer families. The reported 5 oz. per capita production of milk in India (26) cannot meet even half the minimum daily recommendations for children. An ideal solution to the problem of protein malnutrition would be to increase milk production several fold. However, the socio-religious background of India prevents achieving this goal. Even with a well organized, intensive breeding and feeding program, milk production would be severely impeded by the several millions of superfluous, totally unproductive cattle competing with milk cows for food.

Through the efforts of UNICEF[5], skim milk powder is being made available to children of the underdeveloped countries, a program which has proved of great value. However, the poor keeping quality of skim milk powder (27) and its unpalatability have restricted its consumption. Also of great importance is recognition of the fact that the addition of milk powder to the rice diets of the low-income groups of India might not be feasible on a daily routine basis because the resulting preparation or dish may be neither palatable nor acceptable. There is still the problem of changing long-standing dietary habits—a problem of nutrition education. Furthermore, imports of skim milk are at a low level at present. Thus, a nutrition program for the improvement of public health with skim milk powder as a basic constituent of the diet cannot yet be introduced as a long-range program in India. Amino acid supplementation has been repeatedly demonstrated to improve the nutritive value of rice and other cereals (28-30). Recommendation to improve cereal diets by amino acid supplementation does not seem realistic, mainly because it would involve heavy financial expenditure (31).

[5]While this paper was in press, Dr. L. J. Teply has brought to the attention of the author information about the successful distribution in underdeveloped countries by UNICEF of a high-quality skim milk powder, as reported in a new publication prepared by FAO, WHO, and UNICEF with the help of Dr. G. Herlitz, Dr. A. Vergara, and Professor A. Wallgren, "Dry Skim Milk Distribution."

TABLE 3 **Effect of supplementing experimental East Indian diets with fish flour**

DIET	DIETARY PROTEIN	TOTAL FOOD INTAKE (28 days)	BODY WEIGHT		PROTEIN EFFICIENCY RATIO*
			Gain	Increase over control	
	%	*gm.*	*gm.*	%	
No. 1	7.0	271	61±1.8	—	3.223±.093
No. 1A	7.9	271	71±2.2#	16	3.309±.110
No. 1B	9.4	271	89±1.3¶	45	3.505±.102†
No. 2	12.9	280	71±1.5	—	1.980±.038
No. 2A	13.6	280	81±1.3¶	31	2.127±.035‡
No. 2B	14.8	280	102±1.1¶	43	2.470±.028¶
No. 3	9.7	279	32±3.1	—	1.183±.096
No. 3A	10.6	279	56±4.1#	76	1.882±.134#
No. 3B	12.1	279	79±2.8¶	145	2.364±.077#
No. 4	9.3	259	54±1.6	—	2.204±.059
No. 4A	10.0	259	68±2.1¶	25	2.560±.070#
No. 4B	11.6	259	86±1.2¶	58	2.792±.039¶

*Grams body gain per gram protein intake.
†$P = 0.05$.
‡$0.01 < P < 0.02$.
#$P < 0.01$.
¶$P < 0.001$.

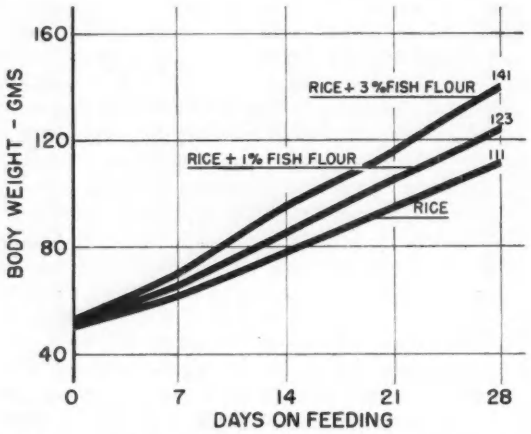

FIG. 1. *Effect on rat growth of supplementing a poor rice diet with fish flour (equal food intake).*

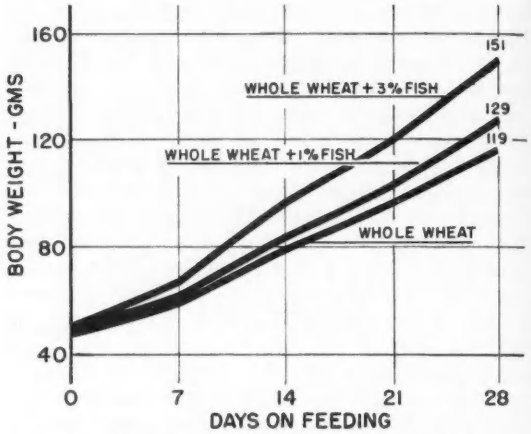

FIG 2. *Effect on rat growth of supplementing a whole wheat diet with fish flour (equal food intake).*

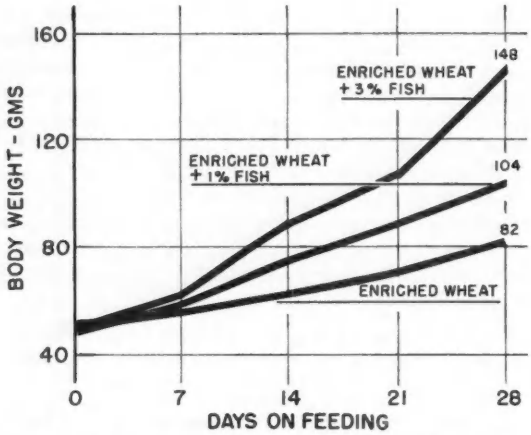

FIG. 3. *Effect on rat growth of supplementing an enriched wheat diet with fish flour (equal food intake).*

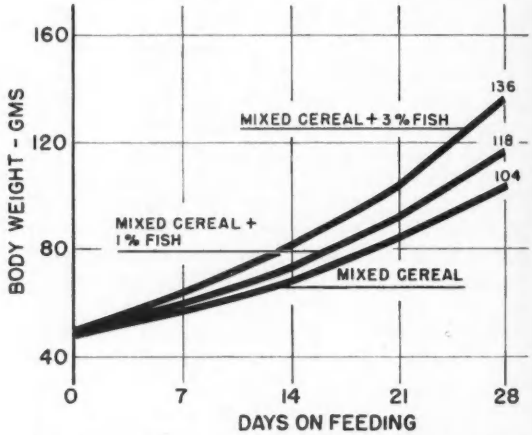

FIG. 4. *Effect on rat growth of supplementing a mixed cereal diet with fish flour (equal food intake).*

Realizing the urgent need for improving poor Indian diets, the Central Food Technological Research Institute of India has developed a food supplement called the "Indian Multipurpose Food," which is a blend of 75 parts groundnut (peanut) meal *(Arachis hypogea)* and 25 parts Bengalgram *(Cicer arietinum)*, fortified with thiamine, riboflavin, vitamins A and D, and calcium phosphate (26, 32-34). This supplement has 42 per cent protein, 8.5 per cent fat, 0.66 per cent calcium, and 6.8 per cent moisture. The protein of this product has a 59.5 per cent biologic value; the product has a fair amount of supplementary value when included in the poor vegetarian diets at 12.5 per cent level, and a shelf-life of more than one year at 25-30°C. when packed in hermetically sealed cans. The marketing cost of this product in India is estimated to be about 12 annas (16 cents) per pound. The protein and mineral supplementing value of the Indian Multipurpose Food could be considerably improved at practically no extra cost, if a small amount of fish flour were included. For example, if 20 per cent fish flour were incorporated in the Indian Multipurpose Food, the resulting product would have a protein content of 51 per cent and a calcium content of 1.03 per cent.

Considering the large population of India, which is now growing at the rate of 5 million a year, an effective and realistic approach to solve India's food problem would be to cultivate intensely short-term, high-energy-yielding, wholesome staple grains, such as rice, and to exploit the water resources for raising and processing fish. Until a break-through in photosynthesis, no agricultural policy aimed at increasing food production can hope to overtake the food needs of a rapidly growing population, if the ocean's food potential is neglected. India has a vast coastline, several perennial rivers, scores of artifi-

cial lakes, and a year-round pleasant and invigorating climate in most parts of the country. Creation of a fish authority of India for developing a fish industry with emphasis on manufacture and promotion of an inexpensive, wholesome and high quality fish flour, which can keep indefinitely at prevailing climatic conditions without being canned, should go a long way toward combating protein malnutrition.

Consumer Acceptance Test

An organoleptic test was conducted to learn whether a panel of tasters could detect the fish flour added to common Indian dishes. Three Indian snack dishes, "puri" (bread), "dosai" (pancakes), and "sambar" (pea soup), were prepared by a panel of Indian women. Fish flour was included at the 3 per cent level in some of these preparations. A panel of students from different parts of India participated in the test. Each was served with three sets of dishes; each set had three dishes; some dishes had fish flour mixed in them, and some were without fish flour. The students were asked to score each dish "prefer" or "don't prefer." The data were statistically analyzed.

Twenty-six participants scored three different dishes, making seventy-eight sets of three "preferences." Of these, forty-four were all "prefer," and four all "not prefer." Of the remainder, twenty-one discriminated wrongly and nine discriminated rightly, one less then expected by chance. Thus, it is reasonable to conclude that the panel of Indian students had little, perhaps no, ability to detect the addition of fish meal to Indian dishes.

Fish flour is likely to be favorably received by a majority of the Indians, who would like to include meat or fish in their diet regularly but cannot afford it. The average income of the Indian is 25 rupees ($5) a month (35). Furthermore, in the rural areas, where India's 340 millions live, meat is a rare commodity. Meat and fish are not regularly available in the Indian village, mainly due to lack of refrigeration. Hence, an inexpensive but high quality protein-rich food, such as fish flour, which keeps well at room temperature, should be an excellent dietary supplement, especially if the people are told about its nutritional value. (No impairment in the biologic value of the azeotropic-extracted fish flour was observed when the fish flour was stored at room temperature for eighteen months.)

Summary and Conclusions

An odorless, defatted fish flour, evaluated for its protein quality by the Mitchell-method, was found to have a biologic value of 88 per cent. At the 10 per cent protein level in diet, its protein efficiency ratio (gram gain per gram protein consumed) was 3.24 as compared with 3.57 of the whole egg protein.

The supplementing value of fish flour to the East Indian diets was studied with growing rats using Mitchell's pair-feeding method. At 1 and 3 per cent supplementation, growth improvements were 13 to 76 per cent and 43 to 145 per cent, respectively, over the controls. The protein efficiency ratios of most of the cereal diets were also improved significantly ($P < .01$) following 3 per cent fish flour supplementation, indicating a better amino acid mixture of the supplemented diets.

A consumer acceptance test indicated that a panel of twenty-six Indian students was not able to detect the addition of 3 per cent fish flour to Indian diets.

The importance of fish flour supplementation to Indian diets for combating protein malnutrition is discussed in relation to India's agricultural economy and nutrition, particularly with reference to shortage of milk, expensive animal products, and lack of a high-quality, inexpensive protein supplement.

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Minerals in Fresh Vegetables

The sodium and manganese contents of fresh vegetables vary greatly in fresh vegetables grown in different parts of the country, according to a USDA study done by H. T. Hopkins and J. Eisen of the Human Nutrition Research Division, Agricultural Research Service.

Asparagus, snap beans, cabbage, carrots, celery, sweet corn, lettuce, onions, and tomatoes from various areas were analyzed. Sodium in lettuce grown in California was ten times that of lettuce grown in New York, and western onions, carrots, and celery were also higher in sodium content than eastern-grown vegetables. This may be due to the higher sodium content of irrigation water and soils in western areas. However, lettuce and onions, even at the highest levels of sodium content, contribute little of it to diets in comparison with that from other sources. Carrots and celery are high in sodium, each containing five to ten times as much as the other vegetables, regardless of the growing area.

Carrots grown in Arizona and Southern California had two to three times as much manganese as those from Central California, New Mexico, and New Jersey, while carrots from Southern Texas averaged four to five times as much.

Very little difference, due to growing areas, was found in boron, phosphorus, aluminum, magnesium, and potassium values, and there was less difference in iron, copper, and calcium than for sodium and manganese.—*From Agricultural Research, January 1960.*

Fairfax T. Proudfit
1872-1960

One of the pioneer members of The American Dietetic Association, Fairfax T. Proudfit, died in Memphis, on July 12, 1960.

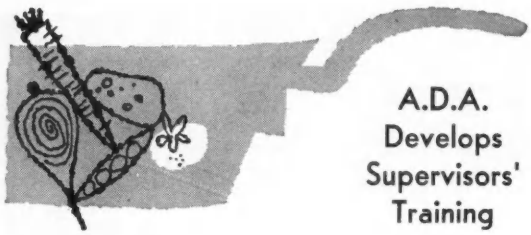
Miss Proudfit served for more than thirty years as Director of the Dietary Department of the John Gaston Hospital in Memphis. She organized courses in nutrition and diet therapy at the University of Tennessee Schools of Nursing and Medicine, the Baptist Hospital, Memphis General Hospital, and St. Joseph's Hospital, and taught hundreds of nursing and medical students. In 1918, the first edition of her book *Dietetics for Nurses* was published by the Macmillan Company, and under the title *Nutrition and Diet Therapy*, it has been used internationally through its eleven editions.

In 1918, Miss Proudfit was invited by Lulu Graves to join The American Dietetic Association, and from that time forward, she was a vigorous organizer of dietetic groups throughout the South. She might well be described as the "First Dietitian of the South," for it would be difficult to estimate fully the influence of her example in strengthening the standards and furthering the cause of dietetics in the South. She served as President of the Tri-State Dietetic Association (Alabama, Georgia, and Tennessee) and was instrumental in bringing about the affiliation of the state associations with The American Dietetic Association. Likewise, she served as President of the Tennessee and Memphis Dietetic Associations and helped in the organizing of the Mississippi Dietetic Association. During the difficult depression years, 1932-1937, she was a member of the Placement Bureau and set a pattern of public relations by personally calling on hospital administrators, school boards, state senators, and the governor to explain the role of the dietitian.

Miss Proudfit was honored on many occasions by her community and by professional groups. A dogwood tree planted in Memphis with a permanent marker honors Miss Proudfit for her contributions to the community. Perhaps the outstanding honor conferred on her was the Marjorie Hulsizer Copher Award, highest honor of The American Dietetic Association, presented in 1949 in Denver, in recognition of "her pioneer work in diet therapy; her contribution to the appreciation and understanding of dietetics gained by hundreds of nurses and physicians whom she has taught; her skill in interpreting nutrition and its application to dietetics as shown by her textbook which has been used continuously and revised since 1918; her never failing interest in the patient; and her many and varied contributions to the Association and its members."

Miss Proudfit was so petite that those who first met her were always surprised with her dynamic personality, her forthrightness, and her ability to command any situation. But she was more than all these things. She was a southern gentlewoman —proud of the traditions of the South, warm, friendly, hospitable, and charming. Her interests and activities were many and included her home which she shared with a sister, Jennie Proudfit; yearly treks to New Hampshire, where she was an active member of the Appalachian Mountain Club; and her faithful membership in Calvary Protestant Episcopal Church in Memphis. To the many children who loved her, she was "Aunt Fax"; to her friends she was "Dixie." Able administrator, inspiring teacher, skilled author, and loyal friend, the name of Miss Proudfit will live on in the memory of hosts of dietitians, nurses, physicians, and friends.

One of the Memphis papers said of Miss Proudfit: "She was born with a name that stood well in Memphis. Her accomplishments in service to the public and its health made it a good name far from her home town." We, in dietetics, recognize this to be true.—*Corinne H. Robinson, Head, Department of Food and Nutrition, Drexel Institute of Technology, Philadelphia.*



A.D.A. Develops Supervisors' Training

Review of the 1950-1960 Decade

MYRTLE B. VAN HORNE[1]

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IT ISN'T according to "nature," but sometimes when one drops a pebble in the water, the ripples become larger instead of dissipating as they spread. Sometimes they become such large ripples they look like waves of our time.

Such a pebble was dropped by members of The American Dietetic Association many years ago—in 1942, to be exact—when they first recognized the need to delegate tasks to non-professional personnel so that the qualified dietitian's time could be used more profitably with duties for which she had been educated. In that year, a committee, working under the Association's Council on War Activities, was appointed to study the problem of training "nutrition aides." The following year, the Community Nutrition Section also sponsored a project concerned with preparing a training outline for dietary aides as a part of the over-all war effort. It soon became evident that the best and surest way for dietitians to meet their responsibilities, particularly in the hospital field, was to train non-professional people to perform duties that did not demand specialized professional background.

The voluntary dietary aide programs ended with the end of World War II, but the concept of training the auxiliary worker to widen the use of the first-line supervisory person was given much more serious thought by the leaders of the dietetic profession. The pebble had been dropped, and the ripples were spreading.

The Problem Comes into Focus

The years between 1945 and 1951 saw the development of many important projects by A.D.A. committees, such as guides for the selection and training of auxiliary workers, and training plans directed toward making the best use of the dietitian's time. Emphasis in all this activity was placed on the development of the executive ability in the dietitian. In effect, policy-making and over-all management functions were stressed as the hospital dietitian's primary responsibility, while day-to-day work of routine supervision could be delegated to non-professional personnel.

After much study and pooling of opinions and experiences of members, the title "food service supervisor" was considered the most suitable for the non-professional worker who would assist the dietitian in assigned routine administrative tasks.

The next logical step appeared to be to develop sound criteria for delegation of duties and at the same time maintain professional standards. This involved an objective evaluation of duties which only a dietitian is prepared to do (1). A.D.A. members examined their own duties—in discussion groups and workshops stimulated by several project committees. Encouragement was given to this "revolution-from-within" by hospital administrators who were acutely aware of the need for the most efficient use of the talents of qualified dietitians (2).

In this connection, a report was published of a field study made by Prall *et al.* (3) in which the working schedules of dietitians in seventeen hospitals of 100 to 300 beds were studied. This report revealed "the need for the dietitian to analyze herself and her own talent and performance in relation to the job to be done, so that she may select and train assistants able to complement her performance, thus achieving better dietary service and relieving her own job of wasteful routine."

As a result of the combined thinking of several A.D.A. committees, the duties and responsibilities of the food service supervisor were defined and published in this JOURNAL in 1954 (4). This "new occupation" of food service supervisor, in an organization chart of the dietary department, is shown as responsible to a dietitian and assigned to supervise a given group of employees.

Training Is Tentatively Outlined

One of the greatest accomplishments in this chain of achievements was the development and publication in 1955 of the *Tentative Trial Outline of Class Room Instruction—The Training of the Food Supervisor* (5). This was conceived as a guide in establishing a standardized educational program for food service supervisors, which would qualify them to assume the supervisory responsibilities delegated to them by the dietitian and prepare them to meet the performance level of today's concept of supervisory leadership in their respective areas.

It was the thinking of the A.D.A. committee at that time that a course could be offered in two parts: 90 hr. of classroom work (in a vocational school) followed by a second semester of supervised prac-

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tice in a hospital. A *First Tentative Trial Outline of Hospital Experience* (6) was therefore prepared for the dietitian's use in supervising the practice period of the student in the hospital. It included suggestions for general orientation as well as supervisory aspects of other specific work areas. These two outlines were made available for general distribution from the A.D.A. office in Chicago.

In the broad outlook, the training of food service supervisors is the responsibility of the dietetic profession as a whole. In view of the strides made in training programs and materials prepared, *our profession has met the challenge both on an organizational basis and on an individual basis.*

Training Programs Are Established

Many training programs have been established in various areas of the country, usually in cooperation with adult and vocational high school systems. Local and state dietetic associations have joined hands with hospital administrators and public school systems to provide vital and important training programs. It is believed that there are many more programs existing than are now known, and there is evidence that new programs are established each year. It is most gratifying to know that in each case these programs have been inspired and sparked by the dietitians in each area. For the most part, the A.D.A. *Tentative Trial Outlines of Classroom Instruction* and *Hospital Experience* have been used as the basis of the curriculum developed.

Mention should be made of the fine in-service training programs in hospitals which have been developed by our leading dietitians, who have found the "Outlines" helpful.

Since the first courses were established in 1952, Continuing Education Centers in several universities have offered training programs (7). It should be noted that both The American Dietetic Association and The American Hospital Association encouraged and fostered the food service supervisors' program at Michigan State University begun in 1955. This program, designed to aid the individual working under a dietitian, as well as the able person who supervises a food service in a small hospital, was aided by the W. K. Kellogg Foundation. Now at the end of the fifth year of the pilot program, it has become a permanent offering at the Continuing Education Service of Michigan State University.

A non-credit correspondence course, developed through the co-sponsorship of the Pennsylvania Dietetic and Hospital Associations and administered through the Extension Service of the Pennsylvania State University, has been enthusiastically received.

An extensive bibliography and performance rating schedule were prepared by the Committee to Study the Food Service Supervisor in 1957 and are available from the A.D.A. office in Chicago. This reference material is extremely helpful to members who contemplate establishing a new training program.

The Dietitian's Recruiting Responsibility

Along with training, our members have a responsibility in *recruiting* able persons to become eligible for secondary level supervision. It is in the present fashion to make much over the fact that we live in a world that "changes as we walk in it." Yet this is a world which has never offered greater opportunity for the fulfillment of learning. Our adult population contains a wealth of undeveloped resources which are ripe for further training. Many women, both married or unmarried, are spending more time on jobs outside of their homes for a longer period of their life cycles. Half of the high school graduates, authoritative sources show, prefer to join the labor force rather than go to college. Among those who go to college, about half drop out because college isn't the right place for them after all. People of all ages are educable and go about the business of learning in much the same ways.

We know from statistics and authoritative sources that university programs are not providing enough qualified dietitians, and, despite the continued growth of the profession, the total numbers have not increased sufficiently to meet the need. The dietitian's great hope, then, in extending her professional services, is to promote currently employed able workers, or those with potential, for secondary level supervision. Hers is the task of arranging the occasions and resources whereby the learning can take place. One real result could be an upgrading of her own position and status.

Thus, we can count the ripples of achievement made by The American Dietetic Association in the last decade of encouraging and fostering training programs for the food service supervisor. Training programs have gone beyond the realism of skepticism. They are aiding the larger effort of extending the best possible use of the dietitian's professional services.

The A.D.A. Experimental Training Program—1960

And now, The American Dietetic Association is concerned with the development of a new program, an experimental education training program for the hospital food service supervisor. The grant of $71,160 received from the W. K. Kellogg Foundation, as announced at the Association's House of Delegates on August 24, 1959 in Los Angeles, is being used to develop basic curriculum materials which will encompass a correspondence-type course of one year's duration, as one part of the experimental venture. It is believed that such a correspondence course would provide training for individuals in

hospitals in many communities which heretofore had not been reached or did not have facilities for a formal program. Such a course would eventually be of national influence in improving hospital food services. The American Hospital Association is lending support to this wide-range program.

The course materials are planned for able persons currently employed as "cook-managers" in small hospitals or as food service supervisors in larger hospitals working under A.D.A. members. Reliable statistics indicate that many hospitals under 100 beds across the country do not have dietitians and their prospects of employing a professional dietitian are remote. This situation demands the concerted effort of the dietetic profession in providing basic information which will assist the persons attempting to supervise the food services in these hospitals.

The grant from the Kellogg Foundation will run for eighteen months. During the first six months, the lesson materials have been written. In the process of developing the correspondence lessons, many questions had to be considered. How many lessons should be included in a year's course? What should be included in lesson content? What type of format should be used?

In view of the tremendous success and acceptance of the *Tentative Trial Outline of Class Room Instruction*, it seemed wise to draw on it as much as possible in developing the lesson materials. The best possible use was also made of studies and contributions prepared by A.D.A. members, so that the lessons, as developed, represent many things from many people.

The curriculum content will include fifteen lessons which cover: hospital and food service orientation; human relations and communications; personnel management; supervisory techniques; nutrition and meal planning; modified diets; sanitation and personal hygiene; good housekeeping and safety; and food preparation and service, including standardized recipes and portion control (five lessons); and essential records.

Each lesson involves a suitable assignment from the text, *Hospital Food Service Manual* (11), supplementary readings, and appropriate lesson exercises. Review questions are included at the end of each lesson, designed to reveal the student's progress. Lessons are planned so that approximately 6 hr. preparation time will be required to complete an assignment. It is anticipated that the lessons will be worked out by the students in their home environment.

The Project Director has reviewed all plans and educational materials with a special advisory committee comprised of Ruth A. Spencer, Veterans Administration Area Office, Atlanta; Aileen Konhauser, The Pennsylvania State University; Anna K. Jernigan, Iowa Department of Health, Des Moines; Ruth Kahn, formerly of the American Hospital Association, Chicago; and Ruth M. Yakel, Executive Director, The American Dietetic Association.

The lessons in this correspondence course will be tested with a pilot group of twenty-five students from Iowa, Nebraska, and South Dakota. The state hospital associations in these states are already functioning in the recruitment of students. Applicants who are cook-managers from small hospitals will have "preceptors" to serve as guides and counselors during the year's course. The preceptors will be A.D.A. members and the state dietetic associations in the three states are already functioning in recruiting the preceptors. A preceptors' manual has been prepared, and it is planned to hold a briefing session for preceptors prior to launching the pilot study to orient them concerning lesson content and to the concept of their function as preceptors.

The students in the pilot study will be brought together for a short period for group evaluation at least once during the year, at the Continuing Education Center of the University of Nebraska at Lincoln.

An alternate plan proposed in the experimental program may be to bring another group of ten to fifteen students selected from one or two states in the Midwest to a study center for concentrated classroom experience of from four to six weeks. The established criteria for the correspondence course would be used in selecting students and preceptors, and the correspondence lessons would be used as the basis of the curriculum for the concentrated classwork. It seemed advisable to launch the correspondence type study first and adapt it to the alternate plan at a later date.

The pilot study will be launched during September 1960, the final selection of students having been completed in August.

At the end of the eighteen-month experimental study, The American Dietetic Association should be in a position to determine the most expeditious method of making in-service training available to food service supervisors in hospitals across the country. With the administration and development of this experimental training project, the Association will continue to take the lead in the great effort of providing an opportunity for able persons to increase their knowledge of hospital food service work and thereby provide good quality patient care.

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Quickie Demonstrations

Many conferences and workshops are held on our campus for non-professional groups in fields related to dietetics and home economics. Sometimes it is a problem to "break the ice" so that everyone will participate. We have developed the "quickie" demonstration for this purpose, and also because showing can be much more effective than telling. A "quickie" usually takes 1 to 2 min., and never more than 5 min. A few words of explanation are given, and then the idea itself is presented.

We use colorful, light-weight plastic and fiber glass trays carried by hand and placed on light-weight rolling carts. By using a tray or cart, the demonstrator quickly and easily moves to and from groups. Some examples of "quickies" used recently at our annual conference for food service personnel in small hospitals and nursing homes are given below:

TRAY DISPLAYS

1. *Individual meat loaves baked in muffin tins.* Show the correct size scoop of meat mixture to put in each tin; meat is pressed in tin and smoothed off for baking; and individual loaves are baked and removed from tins.

2. *Color with gelatin.* Two pans of different color gelatin are marked off in cubes. Some cubes are removed from the pans and arranged in a glass serving dish to show color appeal for the patient.

3. *Arrangement of attractive salads.* Various kinds of greens are shown.

4. *Variety with salads.* Examples are displayed of: salad as an entrée, fruit salad, mixed vegetable salad, and gelatin salads.

5. *Foods to increase protein in the diet.* Non-fat dry milk, cooked egg white, and cottage cheese are shown, with a card beside each listing uses.

6. *Vegetable ideas.* Carrots (or other vegetables) are displayed—cut in strips, circles, curls, and cubes.

7. *Examples of bread exchanges (or other exchanges) for use in the diabetic diet.*

8. *Herbs and spices suitable for adding flavor to the low-sodium diet.* A card beside each herb suggests the foods with which it might be used.

9. *Self-help utensils for the physically handicapped to use in eating and drinking.* The display includes forks with bent handle, forks and spoons with aluminum tubing or sponge rubber grips; coffee mug for soup; and "bull dog clip" to hold drinking straw in place on the glass.

10. *Books and pamphlets on food for older people.* Publications on other topics are also shown, when different subjects are discussed.

ONE-MINUTE DEMONSTRATIONS

1. *How to peel and section a grapefruit.*

2. *Bread cups for serving creamed foods* A slice of bread is shown, the crust trimmed off, brushed with butter, and inserted in a muffin pan. Finished bread cups, browned in the oven ahead of time, are also shown.

After the "quickies" have been presented, the materials shown are placed on tables at the side or rear of the room so that they may be studied more closely between sessions.

These "quickies" have been used primarily when the conference has divided into discussion groups. The demonstrator goes from group to group, taking a minute or two to show the display. She answers any questions which may be asked; otherwise, she moves on to the next group. The subject of each "quickie" is chosen so that it is appropriate to the topic of the discussion group.

"Quickies" are also given before the whole group when appropriate, when there is a demonstration mirror available making it possible for all to see, or when the objects themselves are large enough to be easily seen. They can be a means of emphasizing, clarifying, or clearly visualizing a main point made by a speaker. They can also serve to introduce a new idea. When a "quickie" is given between talks or speeches, it provides a note of variety or a change of tempo.

Some of the "quickies" have been planned, prepared, and presented by senior students and have proved a valuable learning experience for them. They could be adapted for presentation by dietetic interns.

The response from our audiences and group participants has been enthusiastic. There have been many questions and additional ideas have been suggested by the groups themselves.—*Kathleen Stitt and E. Neige Todhunter, Ph.D., School of Home Economics, University of Alabama, Tuscaloosa.*

Nutrition in Russia

The following reports have been gleaned from the first issues of a new publication, *I.C.R.S. Medical Reports*, published monthly by the Institute of Contemporary Russian Studies, Fordham University. In it, the literature on current research in selected areas as published chiefly in Soviet medical periodicals is summarized. From time to time, as material concerning nutrition appears, the JOURNAL will continue to reprint material from *I.C.R.S. Medical Reports*.

FUTURE DEVELOPMENT OF NUTRITION IN SOVIET UNION

The 21st Conference of the Communist Party has considered the data for planning the development of the USSR national economy for 1959-1965. The plan is related to increased activity of Soviet science, including the science of nutrition. It calls for increased production of all basic food products, the processing and distribution thereof, and the assurance of adequate nutritional qualities and quantities. The role of carcinogenic agents present as food admixtures or occurring naturally in soil, water, and air has not been overlooked. The wide use of various synthetic preparations, coloring and aromatic agents, preservatives, and so on, calls for increased activity of nutritionists in appraising these admixtures as possible carcinogenic agents. The plan also summons to release the Soviet woman from the stupefying and nonproductive labor involved in family life by increasing the number of community kitchens. Scientists will have to find ways and means to improve the community food so as to make it more palatable and attractive to individual tastes. These are the problems set before the Soviet scientists of nutrition. Not to be overlooked is the propaganda by the press, radio, and television, which is necessary to convince the population of the advantages of these plans.—*O. P. Molchanova, Institute of Nutrition, Academy of Medical Science (AMS), USSR, Moscow. Voprosy pitania 18: 12 (No. 1), 1959.*

SCHOOL NUTRITION

The directives of the 20th Conference of the Communist Party state: "The net of school dining-rooms for students must be increased considerably. To fulfill this resolution, the Ministry of Trade of the USSR called a meeting in the summer 1956, and issued Order No. 467 of 25 August 1956 'On improvements in the organization of feeding school children and the sale of school requisites." From September 1956, hot meals were served in almost all schools. Eating arrangements at Moscow schools and in other cities were criticized and were found to be inadequate and antiquated. A special delegation of the Ministry of Trade, USSR, has visited in the USA (McKinley School in Washington and Williamsburg Junior High School in Arlington, Virginia), and described the schools' eating facilities there. Somewhat different arrangements for feeding school children exist in Finland where large food plants prepare hot food which is distributed to the pupils seated in groups of ten to twelve at a table. In the USA, the choice of food is left to children, although this leads to considerable noise and the usual scuffle. In Soviet schools, three types of meals are usually provided: lunch, dinner, and buffet. Lunch consists of a hot dish, dessert, and either coffee or chocolate, and white or black bread. For dinner, soup, a hot dish, dessert, and white or black bread are served. The menus are determined by order of Ministry of Trade No. 14/12 of 28 July 1956, and supplied at a price of 1 and 1.50 rubles. For school buffet, a definite assortment was also provided, but the buffet caterers found it difficult to follow the directives, and sold pastries candy, and other sweets instead. Various difficulties in the adequate distribution of food to school children will be considered.—*V. I. Krenov. Voprosy pitaniia 18: 61 (No. 1), 1959.*

PROBLEMS OF DENTAL CARIES

Dental caries and paradentitis appear to be important health problems in USSR which require concentrated study with new methods. For this purpose, a project was initiated in 1958 by the President of the Academy of Medical Sciences (AMS). The Presidium of the AMS, USSR, has approved the following seven-year research plan for, 1959-1965: Research on dental caries should be conducted on the following lines: (a) creation of an experimental model of dental caries; (b) study of mineral and protein metabolism in hard and soft tissues of the teeth, under normal conditions and caries formation; (c) the significance of the vitamin balance (ascorbic acid, vitamins B, D, and others) in dental pathology; (d) influence of the general condition of the organism (diseases of childhood and adult life, pains in pregnancy, and others) on the formation of caries; the geographical distribution of these diseases; (e) study of immunologic and other reactions occurring in chronic inflammatory processes involving the teeth or periodontal tissues; the role of hygienic factors (ionizing radiation) causing dento-alveolar diseases; and (f) study of prophylaxis and therapy of dental caries.

Research concerning the problem of paradentitis will include study of the role of the vitamin balance and general diet in the etiology, pathogenesis, of paradentitis; study and therapy of paradentitis in animals. —*Prof. I. M. Grigorovskii. Vestnik akademii meditsinskikh nauk USSR 14: 58 (No. 1), 1959.*

DIETETIC PROBLEMS IN THE SOVIET UNION

Molchanova (1) reviewed the current state of nutrition in the Soviet Union and concluded that for solving the problem of adequate provision of various sections of the population, data are required on the chemical composition of food products of local origin. Although the Ministry of Health, USSR, has published copious material on the protein, fat, and carbohydrate content of various diets, no valid data exist on the content of vitamins, minerals, and microelements in these foods. It is hoped that these defects will be remedied soon, particularly because the Institute of Nutrition of the Academy of Medical Sciences, has worked out physiologic requirements of various population groups in relation to their age and type of physical activity. The application of these requirements to prevailing conditions must be suspended until data on the complete composition of Soviet food are available. Only then can the exact nature of food requirements in the Soviet Union and problems arising therefrom, be visualized if the calculated food requirements, under sanitary and pathogenic conditions, are to be put into practice.

Kuznetsov *et al.* (2) found that vibration applied to human beings at a frequency of 10 to 70 oscillations per second at an amplitude of 0.4 to 1.6 mm. produced a decrease in the concentration of ascorbic acid in blood plasma, accompanied by lowered levels of urinary thiamine, riboflavin, ascorbic acid, and 4-pyridoxic acid. These results were interpreted as

3 good ways to put

THE NUTRIENTS OF CORN

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Kellogg's Sugar Frosted Flakes are flaked from milled corn, sugar, salt, malt flavoring. Thiamine, niacinamide, iron added. Serve without sugar. 108 calories per 1 oz. package.

Kellogg's Sugar Pops are puffed milled corn, sugar, corn syrup, molasses, salt. Thiamine, riboflavin, niacinamide, calciferol, iron added. Serve without sugar. 107 calories per 1 oz. package.

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an indication of increased metabolic use of vitamins in persons subject to physical stress, such as vibration.

Fil'cagin (3) observed that protein deficiency induced increased excretion of N'-methylnicotinamide in the urine of rats. This augmented excretion of methylated nicotinamide could be checked only after inclusion of sulphur-containing amino acids to the diet. The author concluded that a relationship exists between the metabolism of the sulphur-containing amino acids and nicotinamide.

Krakoviak (4) criticized the food distribution to participants of the inter-school sport activities of the Soviet Union, because the same diet was offered to all participants, regardless of age. According to the author, there is an urgent and immediate need for a properly balanced ration to be given to young sportsmen.

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DIETETIC TREATMENT OF OBESITY

In all obese subjects, arteriosclerotic changes in the heart were observed (post mortem). In subjects which exceeded the normal weight by 50 per cent, there were indications of heart-lung insufficiency and alterations in blood circulation, accompanied in many cases by moderate increase in arterial pressure. Prior to treatment, there was a definite inertness of basic nervous processes in several subjects; in some, there was increased exhaustion of the nervous systems. As a result of dietary treatment, all patients lost weight (forty-five to fifty days of treatment), and this was accompanied by either complete cessation or noticeable improvement in subjective and objective symptoms of complications which were usually present in obese subjects. The dynamics of cortical activity (as measured by the registration of bioelectric potentials of the brain and by the method of motor conditioned reflexes) were also normalized by the treatment as manifested by the intensification of the excitation process and improvement of the nervous processes.—*L. M. Levitskii, A. I. Makarychev, and L. F. Roshchina, Institute of Nutrition, AMS, Moscow. Voprosy pitaniia 18: 11 (No. 2), 1959.*

UTILIZATION OF FOOD AFTER TOTAL GASTRECTOMY

The utilization of proteins, fats, carbohydrates, and minerals in patients with total gastrectomy was satisfactory after six to eight months following the operation. The nitrogen balance was positive. There appears to be no need for special pretreatment of foods in these patients, although it is so indicated immediately after the operation. Apparently, after the removal of the stomach, other organs compensate for the loss of the stomach, and this is reflected in the observed alterations in metabolic activity of other organs (increased enzymatic activity of the pancreas and small intestine).—*A. G. Demido, Institute of Nutrition, AMS, Moscow. Voprosy pitaniia 18: 19 (No. 2), 1959.*

THE INFLUENCE OF NUTRITION ON THE LACTATION OF NURSING WOMEN

Curds, Holland cheese, sour cream, honey, brewer's yeast, and ascorbic acid concentrates, which were added to a basal diet of confined lactating mothers, improved the quality and the quantity of breast milk. This was determined by measuring the volume produced by the mothers and by weighing the babies who received the milk. The basal diet which was fed to the mothers, however, was not described in detail, except that the average caloric intake per mother was 3000 and, with the exception of apples and oranges, food from outside the clinic was restricted.—*I. P. Barchenko and E. S. Kryzhanovskaia, A. A. Bogomolets Medical Institute, Kiev. Voprosy pitaniia 18: 40 (No. 2), 1959.*

RESPONSE TO ASCORBIC ACID AND CORTISONE ON DIETS WITH VARIOUS HISTIDINE CONTENTS

The activity of brain histidase, but not of liver histidase, in rats was increased on addition of excess ascorbic acid to the diet. Excess of ascorbic acid in the diet abolished the stimulatory effect of histidine in the formation of heme and erythrocytes. Cortisone increased the activity of liver histidase, particularly when the content of histidine in the diet was low. It would appear, therefore, that cortisone accentuates the deficiency in histidine in rats receiving low amounts of histidine in the diet. The level of muscle carnosine was decreased on treatment of rats with cortisone, and the number of leucocytes in the blood was sharply decreased on cortisone treatment, particularly on diets with low histidine content. Cortisone also sharply decreased on cortisone treatment, particularly on diets with low histidine content. Cortisone also sharply increased the activity of liver histidine decarboxylase and histaminase, and there was a tendency for a rise in blood pressure, particularly on diets with low histidine content.—*O. A. Shishova and L. A. Gorozhankina, Institute of Nutrition, AMS, Moscow. Voprosy pitaniia 18: 44 (No. 2), 1959.*

MEDICAL EDUCATION IN THE SOVIET UNION

In 1958, there were 17 physicians for every 10,000 people in the USSR, or one per 570. It is intended to increase the number to 500,000, or one for each 460 people. There are eighty advanced medical, stomatological, and pharmaceutical schools and eleven institutes for advanced training of physicians.—*Meditsinskii rabotnik (the Medical Worker) January 27, 1959.*

In Krasnodar, the students of the Kuban Medical Institute have jointly constructed a students' dining hall.—*Meditsinskii rabotnik, March 20, 1959.*

Today, Americans are annually consuming 40 lb./fresh vegetables—11 lb. less than twenty years ago—but, vegetables in processed form (frozen and canned) are more popular. Consumption is reported by the USDA to be 88 lb. fresh-equivalent, compared with 53 lb. two decades ago. The data cover the ten most popular vegetables—corn, cucumbers, asparagus, Lima beans, green peas, snap beans, broccoli, tomatoes, cabbage, and spinach.—*From Agricultural Marketing, January, 1960.*

New easy way to plan menus where cholesterol control is a problem

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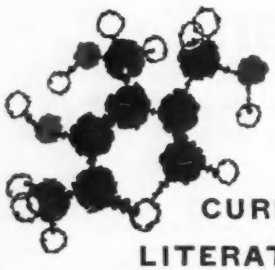

CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl Frederick, University of Chicago Clinics; Elizabeth H. Tuft, Chicago Wesley Memorial Hospital; Margene A. Wagstaff, Elmhurst, Illinois; the following dietetic interns of Charity Hospital, New Orleans; Aleli P. Hernando, Joyce Kerlan, and Mary Jo Mulcahy; and the Journal staff.

THE AMERICAN JOURNAL OF GASTROENTEROLOGY

Vol. 33, June, 1960

*Some recent aspects of fat metabolism. H. V. Thomas, G. K. Wharton, and K. L. Osmon. —p. 673.

Fat Metabolism. This study was undertaken at the University of Southern California School of Medicine and Los Angeles County Hospital. The purpose was to prove that tissue fats are essential and that the body synthesizes saturated fats mainly from ingested carbohydrates and proteins as well as from the fat in the diet. Thus digestion and absorption of fats were studied. These studies seem to indicate that certain fats stimulate fat digestion and fat absorption mechanisms more than others. However, certain other factors are important as well as the specific fat, namely the effect of age, species, individual differences, and other food components present in the ingested fat.

THE AMERICAN JOURNAL OF NURSING

Vol. 60, May, 1960

*The search for professional status. R. K. Merton.—p. 662.

Professional Status. A basic approach to the reason for existence, responsibilities, and problems of professions is expounded. Because of this approach, the content can be applied to any of the professions, including dietetics. It is pointed out that the professions have a distinctive expertness which comes only from research, education, and disciplined experience. The course of a profession is determined collectively—it is the professional association that has the job of working out that course by conjoining the abilities of many to achieve common purposes. The professional association must search out the highest achievable level of discharging the responsibilities assigned to the profession and that level must continually rise. One of the burdens of a profession is that it cannot stand still.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 50, Part 1, June, 1960

*Methodology for dietary studies in epidemiological surveys. II—Strengths and weaknesses of existing methods. C. M. Young and M. F. Trulson.—p. 803.

*Reliability of dietary appraisal: comparisons between laboratory analysis and calculation from tables of food values. M. G. Whiting and R. M. Leverton.—p. 815.

Dietary Studies in Epidemiologic Surveys. In this paper, the strengths and weaknesses of existing methods of dietary investigation, especially as related to epidemiologic studies, are thoroughly analyzed. The best method to be used depends on the objective of the study and the hypothesis to be tested. There is a need for greater clarification in defining over-all objectives and then fitting the dietary method to the objective. A major defect in collecting and processing of dietary data lies in the inability to make precise or even approximate statements concerning the validity and reliability of the various procedures in current use. Until more information on validity and reliability is available, it is difficult to evaluate the usefulness of dietary appraisal in epidemiologic studies. For every dietary study undertaken, consideration should be given to establishing reliability for each step in the collection and processing of data. The validity of the method will be judged by the extent to which the results are a true measure of what the investigator wishes to describe.

Reliability of Dietary Appraisal. This report compares the results obtained by two methods of processing dietary data: (a) by laboratory analysis; and (b) by calculation of calories, protein, and fat with source material which includes only reports dealing with weighed food intake. The results are compared with studies obtained from the literature. Although the weighing of food seems impractical for many groups, it appears feasible to consider use of this technique, in combination with either calculation or analysis, as a base line for checking the reliability of other methods more suitable for field studies. Even though such pre-testing may be available only for a small sample of the population studied, results will indicate the reliability of certain procedures of a dietary survey. Comparison of results from two methods of processing the same data shows that for protein and calories the calculated values for more than 50 per cent of the total cases fell within a range of 10 per cent of the analyzed value. Calculated values for fat tended to be considerably higher than analyzed values. However, for epidemiologic investigations, the amount of such variation, as reported in these comparisons, is sufficient to cast doubt on the significance between two studies in which these methodologic differences may be less than 20 per cent in the intake of calories and protein and less than 30 per cent in fat intake.

ANNALS OF BIOCHEMISTRY AND EXPERIMENTAL MEDICINE (India)

Vol. 10, January, 1960

*Effect of amino-acids and vitamin B_{12} on the nutritive value of pulse protein. D. K. Singh, Y. P. Gupta, and N. B. Das.—p. 1.

*Effects of partial replacement of rice or wheat by tapioca or sweet potato flour on the nutritive value of poor vegetarian diets: influence of season in growth studies. B. N. Majumdar, D. C. Sharma, and N. D. Kehar.—p. 7.

*Studies on the utilization of vitamin A. IV. Influence of the level of protein on the storage and utilization of vitamin A. G. C. Esh, S. Bhattacharya, and J. M. Som. —p. 15.

Effect of Amino Acids and Vitamin B_{12} on Pulse Protein. The influence of certain amino acids and vitamin B_{12} on the protein efficiency ratio (PER), biologic value (BV), digestibility, and protein value (PV) of two pulse proteins, arhar and urid, was observed. Methionine significantly improved the PER as well as the BV of both the pulses, while lysine did so only with arhar. Tryptophan and threonine significantly increased the BV of arhar but not that of urid. Digestibility and protein value of the pulses were not affected by such supplementation. Availability of amino acids in arhar was low and was increased by supplementation. Vitamin B_{12} supplementation caused an improvement in the PER as well as the BV of arhar fed at a 12 per cent, but not at a 17 per cent protein level. Although the exact function of vitamin B_{12} in the utilization of plant proteins is not explained, the possible implication of this vitamin in protein metabolism is indicated.

Poor Vegetarian Diets and Seasonal Influence. A study was made with rats to determine the effects of replacing rice or wheat with tapioca or sweet potato flour during different seasons of the year. It was found that the seasons appear to have considerable influence on the growth rate of rats. In winter, the rate was much higher than in summer. Modification of a rice diet with tapioca flour to the extent of 25 per cent improved the nutritive value of the diet as shown by the increased weight gain both in summer and winter. When a wheat diet was thus supplemented, its feeding value depended on the season. In summer, the effect was somewhat disadvantageous, whereas in winter, growth was slightly better. Sweet potato flour led to an impairment in the nutritive value of the basal diet in summer or winter.

Utilization of Vitamin A. The influence of the level of dietary protein on the storage and utilization of vitamin A at levels of 50 I.U. and 710 I.U. per day during both maintenance and protein-repletion periods was studied in rats. The results tend to indicate that during maintenance, highest vitamin A content was observed in liver at 12 per cent protein intake and at low supply of vitamin A. With massive doses of vitamin A, more was stored by the animals receiving 18

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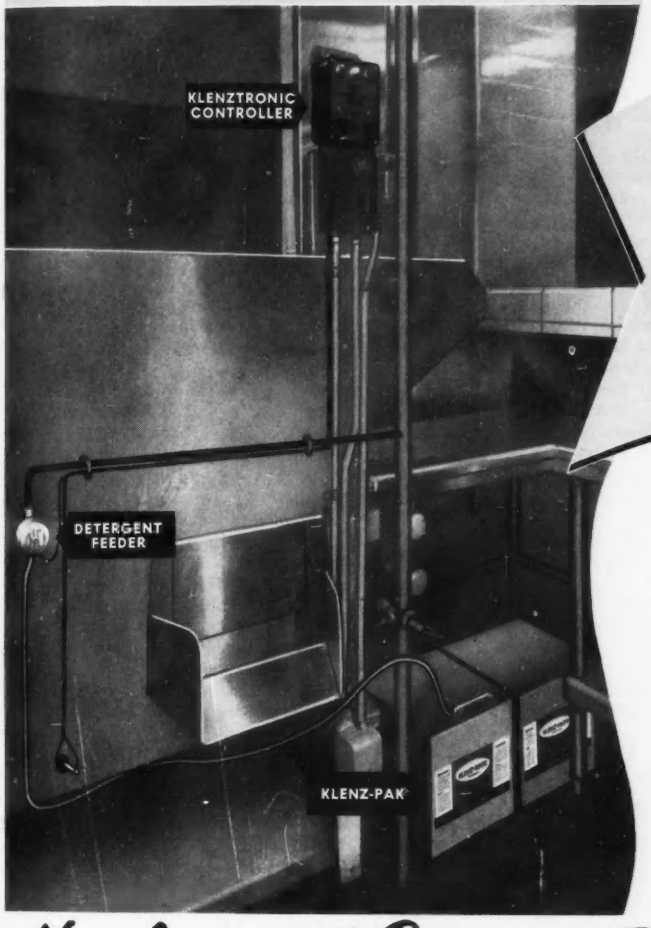

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per cent casein. The protein-deficient animals stored in the liver during the repletion period a lower quantity of vitamin A with higher quantity of dietary protein at both low and massive doses of vitamin A feeding. A slightly greater weight gain was observed when massive doses of vitamin A were fed at all levels of protein intake. On the whole, the results indicated that the level of dietary protein had considerable effect on the utilization of vitamin A.

ANNALS OF INTERNAL MEDICINE

Vol. 52, May, 1960

*Diabetic neuropathy: A consideration of factors in onset. M. Ellenberg.—p. 1067.

Diabetes and steatorrhea in primary carcinoma of the pancreas. P. M. Masley, C. A. Bonanno, and W. J. Grace.—p. 1147.

Vol. 52, June, 1960

*I^{131}-labeled fat and pancreatin as a differential absorption test in patients with steatorrhea. A. A. Polachek and R. F. Williard. —p. 1195.

Uropepsin excretion in the differential diagnosis of gastrointestinal bleeding. A. J. Cummins.—p. 1213.

Rare malabsorption syndromes. J. D. Kabler. —p. 1221.

Diabetic Neuropathy. Diabetic neuropathy should be regarded as an essential and integral feature of the syndrome of diabetes mellitus, rather than as a complication of the disease. The diverse character of the factors preceding the onset of diabetic neuropathy suggests that there may be several etiologic determinants. The sequence of neuropathy following stress situations after a relatively constant latent time interval suggests the presence of a toxic or metabolic factor in these instances.

Differential Absorption Test. Plasma radioactivity was studied in seven patients with calcific pancreatitis and seven patients with various types of malabsorption, following I^{131}-labeled fat meals. During the latter part of the study, pancreatic extract was administered concomitantly. The patients with pancreatic disease showed increased plasma I^{131} levels; those with intestinal disease showed no change. This method may be used as a physiologic test for pancreatic insufficiency. Also, substitution therapy with pancreatic extract may be evaluated in patients with pancreatic insufficiency.

ARCHIVES OF INTERNAL MEDICINE

Vol. 105, May, 1960

*Lengthy diabetes: Causes and effects. W. R. Rogers and B. Holcomb.—p. 746.

Vol. 105, June, 1960

Heart failure and malnutrition. L. Leiter.—p. 825.

Ulcerative colitis among the ethnic groups in Israel. D. Birnbaum, J. J. Groen, and G. Kallner.—p. 843.

*I^{131} triolein tolerance curves in patients with diabetes mellitus. Their similarity to those observed in myocardial infarction. H. Sandberg, B. S. Min, L. Feinberg, and S. Bellet.—p. 866.

Contributions of basic science to modern medicine. Liver regeneration. C. M. Leevy. —p. 966.

Lengthy Diabetes. A group of 114 long-term diabetic patients is described. Their survival, averaging over twenty-nine diabetic years, is well above the general average of sixteen diabetic years. This longevity is attributed to: (a) a well ordered life, including, in most instances, the careful control of the metabolic defect, (b) the development of diabetes at a younger-than-average age, and (c) a favorable heredity. Thirty per cent of the group developed no degenerative diabetic complications. Nearly all of these are yet living; half of those with complications have died. Eighty-two per cent of the deaths were due to cardiovascular-renal conditions. None died from diabetic coma, cancer, or primarily from an infection. This study reinforces the doctrine that maintenance of as nearly normal a metabolic status as possible can prolong the diabetic person's life.

Diabetic Curves. Twenty-seven diabetic patients, ranging in age from nineteen to eighty-six years received I^{131}. Abnormal curves, as shown by elevated whole blood activity, circulating lipoprotein activity, and elevated 24-hr. whole blood and circulating lipoprotein activity, were demonstrated in those under sixty with demonstrable atherosclerotic complications. Lesser degrees of abnormality were found in those under sixty with no clinical evidence of atherosclerosis. The diabetic patients over sixty displayed I^{131} curves very similar to, but slightly lower than the normal controls. The duration of insulin administration had no direct correlation with an abnormal curve, but patients taking large daily doses of insulin showed higher radioactivity in their postprandial samples.

CANADIAN JOURNAL OF PUBLIC HEALTH

Vol. 51, June, 1960

*Multiplication of staphylococci during cheese making. The influence of milk storage temperatures and of antibiotics. F. S. Thatcher and D. Ross.—p. 226.

Staphylococci Growth during Cheese-Making. Laboratory studies simulating cheese-making show that the following factors in relation to milk quality can contribute to the development of massive populations of staphylococci in cheese: substantial contaminations with staphylococci originating from the bovine udder; inadequate overnight cooling; the presence of antibiotic residues; contamination with strains of staphylococci resistant to the antibiotics present in milk. Multiplication of staphylococci can occur rapidly during the period of heat treatment after coagulation of the casein. Staphylococci in excess of 500 million per gram have been demonstrated in the curd after application of specific combinations of the above conditions. The presence of low levels of penicillin in the milk has been shown to allow selective multiplication of the staphylococci and inhibition of the lactic starter culture. Two public health hazards are envisaged: staphylococci food poisoning of which severe outbreaks have occurred recently, and the dissemination into the community of large populations of virulent strains of staphylococci.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 82, May 14, 1960

*Fluoridation and dental decay. Editorial and Comments.—p. 1034.

Vol. 82, May 21, 1960

*Diabetes since nineteen hundred and twenty. C. H. Best.—p. 1061.

Vol. 82, May 28, 1960

*Investigations of tocopherol deficiency in infancy and childhood: Studies of serum tocopherol levels and of erythrocyte survival. R. B. Goldbloom.—p. 1114.

Fluoridation and Dental Decay. The value of artificial fluoridation in preventing dental caries can be determined only by long-term studies. The recently published study of this nature in Brantford, Ontario, has extended over fourteen years. Control observations were provided by two neighboring cities, Sarnia and Stratford. Sarnia's water supply is fluoride-deficient, as was that of Brantford. Stratford has a water supply fluoridated to the optimal extent from underground deposits of fluoride. The eight groups of children concerned were from 6 to 8, 9 to 12, and 12 to 14 years of age. About five hundred children in each age group with continuous residence were examined in each city. In each group, the study revealed a significant and progressive reduction in dental caries among the Brantford children since the artificial fluoridation of its water supply was begun. Close attention was paid to side effects, but at no time has mottling of any significant degree—or any other ill-effects of a medical or dental nature—been noted.

Diabetes Since 1920. The history of the development of the treatment of diabetes mellitus is reviewed. The prediction is made that we will have much better forms of insulin. The main objection to the oral agents is that they have diverted our attention from the problem of making insulin available in a more physiologic way. The presently available oral hypoglycemic agents will probably disappear and be replaced by others which act on a variety of biochemical mechanisms. Modified forms of insulin may become available for oral administration. While this will not enhance the intrinsic therapeutic value and may well involve a considerable wastage of the hormone, as do the present methods of administration, there is no doubt that elimination of the needle will be popular with both patient and physician. There have been 70,000 to 80,000 publications on the subject of insulin since 1921, and many times that on the various other factors involved in diabetes. These fields are still being cultivated vigorously and productively.

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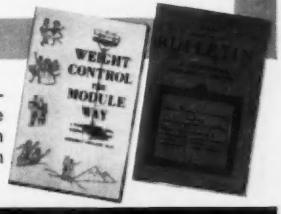

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FOOD AND NUTRITION NOTES AND REVIEWS

Vol. 17, March-April, 1960

*A note on thiaminase. A. Cahn.—p. 25.

Thiaminase. Thiaminase is an enzyme whose activity brings about a loss of the biologic functions of thiamine. It can be extracted from the viscera and to a lesser extent from the flesh of certain varieties of freshwater fish, such as carp; from a few seawater fish, e.g., the herring; and from such shellfish as the clam. It is of particular interest that the occurrence of thiaminase depends on locality. This study was made to determine whether thiaminase was present in carp found in Australian rivers by observing whether rats fed the raw fish to the extent of 25 per cent of the total diet developed symptoms of thiamine deficiency. Although not statistically analyzed in view of the small numbers involved, the results suggest that thiaminase was not present in the particular specimens of carp used for the test.

FOOD RESEARCH

Vol. 25, May-June, 1960

*Growth of food spoilage bacteria in banana purée. E. N. Bilenker and C. G. Dunn.—p. 309.

*Factors in egg white which control growth of bacteria. J. A. Garibaldi.—p. 337.

*Heat resistance and growth characteristics of microorganisms isolated from semi-perishable canned hams. W. L. Brown, C. A. Vinton, and C. E. Gross.—p. 345.

*Biochemical alteration of milk proteins by gamma and ultraviolet irradiation. H. F. Kraybill, M. S. Read, R. S. Harding, and T. E. Friedemann.—p. 372.

*Analysis of coffee volatiles by gas chromatography. A. Zlatkis and M. Sivetz.—p. 395.

*Effect of cooking and carcass part on the methionine and cystine content of chicken meat. J. L. Fry and W. J. Stadelman.—p. 442.

Food Spoilage Bacteria in Banana Purée. The effect of banana pulp on the growth of spoilage bacteria was tested by making periodic bacterial counts on samples of banana purée inoculated with various spoilage organisms. Banana purée supported vigorous growth of *Bacillus coagulans* but inhibited the growth of other species tested, i.e., a thermophilic anaerobe, a putrefactive anaerobe, and two strains of *Clostridium botulinum*.

Bacterial Growth Control Factors in Egg White. In this study, factors in egg white which control growth of bacteria were investigated. Conalbumin, the iron-binding protein, plays a major role in preventing growth of gram-negative spoilage bacteria by making iron unavailable to microorganisms. The inhibition of growth in egg white is completely reversed by saturating the conalbumin with iron. The high *p*H found in egg white shortly after the egg is laid did not inhibit growth of any of the bacteria tested when supplemented with sufficient iron to saturate the conalbumin. The inhibitory action of *p*H in unsupplemented egg white can be explained by its effect on the dissociation of the iron-conalbumin coordination compound. The stability of the latter increases as *p*H increases and thereby iron becomes less available to the microorganisms. Ovomucoid, the anti-trypsin factor, has no effect on rate or extent of growth of gram-negative bacteria.

Microorganisms from Semi-Perishable Canned Hams. The natural flora present on hams for canning and its resistance to heat was investigated. The ham was selected because a large tonnage of this meat product is sold as a non-sterile or semi-perishable canned item. Most bacilli spores were destroyed before 0.6-min. processing at 250°F. Small numbers of anaerobic spores were able to withstand a process of 1 min. at 250°F., but were destroyed before 3 min. A cocci culture isolated from semi-perishable ham was able to withstand a 40-min. processing at 150°F. The same culture, when grown in meat, survived 400 min. of processing at 150°F.

Alteration of Milk Protein by Irradiation. The alterations in skim milk proteins by gamma and ultraviolet irradiation result in a decrease in anaphylactic response when the treated milk is injected into milk-sensitized guinea pigs. Greater changes in biologic response are caused by gamma than by ultraviolet irradiation. Gamma irradiation results in dosage-related increases in viscosity, and in sulfhydryl and disulphide content. Ultraviolet irradiation causes similar increases in sulfhydryl content, but no changes in disulphide bonds. No indication of the formation of methyl mercaptan by gamma irradiation of milk was found. Electrophoresis of the casein and whey fractions showed that below 5.58 megarads, the component proteins were denatured or destroyed; at 5.58 megarads and greater, an electrophoretically immobile component appeared in both fractions which, at 9.30 megarads, was the sole material present. Electrophoresis of ultraviolet irradiated samples showed no apparent change from control milk except for the conversion of approximately 7 per cent of the casein proteins into the electrophoretically immobile component.

Coffee Volatiles. Coffee aroma essence collected from commercial percolator vent gases were separated and analyzed by gas chromatography and mass spectrometry. Dry vacuum aroma ether extracts were also prepared. More than thirty volatile components of roasted coffee, which contribute to this aroma and flavor, were isolated and identified. These compounds include mercaptans, aldehydes, ketones, esters, acids, and heterocyclics. It is of interest to note the presence of low molecular weight hydrocarbons in coffee aroma essence.

Methionine and Cystine of Chicken Meat. The effect of cooking and carcass part on the methionine and cystine content of chicken meat was determined. Both methionine and cystine were stable to the effects of cooking by baking in a covered container. Significant increases in both amino acids occurred during cooking, apparently due to the fact that the drip lost during cooking contained very small amounts of methionine and cystine and changed the proportion of the remaining amino acids as a percentage of the nitrogen present in the cooked meat. There were no significant differences between individual birds. The various segments of the chicken carcass differ significantly in their content of methionine and cystine. Light meat was highest in methionine, and the liver contained the largest amounts of cystine. Skin was lowest in both amino acids.

FOOD TECHNOLOGY

Vol. 14, June, 1960

*Effect of electron beam irradiation on the microbial content of spices and teas. P. A. Lerke and L. Farber.—p. 266.

*Effect of different length chill periods with chlortetracycline and different holding conditions on the shelf life of dressed fryers. E. O. Essary, L. E. Dawson, and W. L. Mallmann.—p. 286.

*Time-temperature tolerance of frozen foods. XXII. Relationship of bacterial population to temperature. H. D. Michener, P. A. Thompson, and W. C. Dietrich.—p. 290.

*Effect of extraction rate of flour and of supplementation with soya meal on the nutritive value of bread proteins. K. Guggenheim and N. Friedmann.—p. 298.

*Thermal and nonthermal degradation of acronize chlortetracycline in fish and some shellfish. E. F. Kline, A. Abbey, M. C. Firman, and P. F. Hopper.—p. 305.

*A modern evaluation of foods. E. F. Kohman.—p. 312.

*A note on the analysis of consumer preference data. O. Dykstra, Jr.—p. 314.

Radiation Reduces Contamination of Spices and Teas. Spices are known to be contaminated to varying degrees with mold spores, yeasts, bacteria, and sometimes insects. This contamination represents a potential source of trouble when the spices are incorporated into food preparations, such as sausages and other ready-to-serve meats. To eliminate this possible cause of spoilage, raw spices are generally treated to reduce the microbial and insect content. Radiation seemed to be worthy of study as a possible alternative method. The effect of a dose of 2 megarep of irradiation on the con-

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tent of bacteria, yeasts, and molds of oregano, sweet basil, sage, allspice, cinnamon, cloves, ginger, nutmeg, black and cayenne peppers, chili powder, paprika, and green, orange pekoe, and oolong teas was quite striking. The microbial populations of the products were completely eliminated or reduced to insignificant levels. In black pepper, cinnamon, and cloves, there was a noticeable change in the odor complexes and in their content of volatile reducing substances.

Chilling Fryers with Chlortetracycline. The effect of different lengths of chill time, with and without chlortetracycline, on shelf life of fryers was studied. Treatment with chlortetracycline gave beneficial effects after ten days' storage; however, these tests indicate little benefit during the first ten days of storage as determined by total bacterial count and raw odor scores. In most cases, 2-hr. chilling, with or without chlortetracycline, gave lower total counts and higher raw odor scores than did 12- and 24-hr. chill periods. Total bacterial counts were lower and raw odor scores higher for a longer storage period for chlortetracycline-treated birds, chilled for 2, 12, and 24 hr. and held in tray-packages than for similarly treated birds held in flaked ice for similar periods of time.

Bacteria in Frozen Foods. Bacterial counts on eighteen lots of peas, beans, cauliflower, and spinach were followed during experimental exposures to temperatures ranging from −10° to 40° F. Taste tests were also carried out after these treatments. Average initial (−20°F.) count ranged from below 10^5 to over 10^7 bacteria per gram. Within lots, counts on different packages differed by as much as fifty-fold. Peas were much more variable than the other vegetables. At temperatures of −10° to 20°F., bacterial growth never occurred, but large numbers of bacteria always survived prolonged storage. On a percentage basis, survival was extremely variable but averaged around 50 per cent and only once fell below 10 per cent. Flavor deterioration occurred in this temperature range and thus could not have been caused by bacterial growth. Bacterial growth always occurred at 25° F. and above. The population doubled in one to eight weeks at 25° and 30°F., and in less than a week at 40°F. Growth can continue to the point of bacterial spoilage at these temperatures. Off-flavor was detected, however, before the bacterial count had increased significantly. Thus, initial development of off-flavor appears to be unrelated to growth of bacteria.

Bread Proteins. Twenty kinds of bread were prepared from flour differing in extraction rate (74, 82, 86, 90, and 95 per cent) and fortification with soya meal (0, 6, 9, and 12 per cent). Lysine per gram nitrogen increased with both extraction rate and percentage of soya. Threonine increased and methionine decreased with the percentage of soya, and both did

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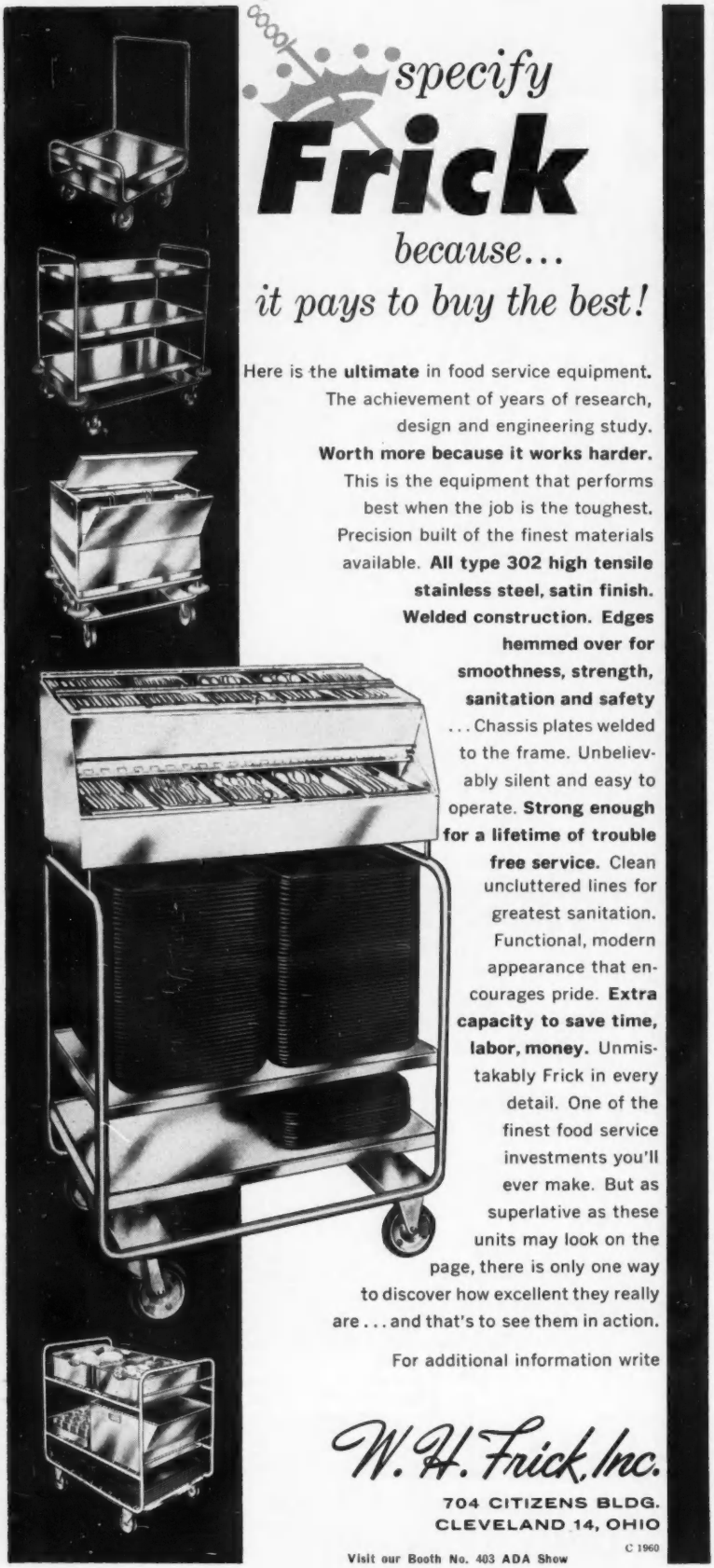
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not appreciably change with extraction rate. The nutritional value of bread proteins was assessed by determining the net protein ratio (NPR). When only bread provided dietary protein, the NPR rose as the percentage of extraction and of soya added increased. Soya improved the nutritive value of proteins of both white and dark breads. When bread supplied only half of the dietary protein, the other half being derived from casein, neither extraction rate nor soya improved the nutritional value of the protein. Whereas lysine is the limiting amino acid in bread proteins and is supplied in increasing amounts by increasing the percentage of extraction or of soya added, this amino acid is not limiting in bread-casein diets. Improvement of the nutritional value of dietary proteins by increasing the percentage of flour extractions or fortification with soya meal may, therefore, be expected in diets in which wheat products represent the predominant source of protein.

Chlortetracycline-Treated Fish and Shellfish. This study was undertaken to determine the effect of several processing methods on the degradation of varying amounts of chlortetracycline contained in fish flesh. In some experiments, the amounts of chlortetracycline found in the flesh initially were much greater than would be expected under commercial conditions. The following observations were made: Frying flounder fillets in deep fat for 10 min. completely degraded the antibiotic. After 5 min. frying, at least 40 per cent of those fillets that originally contained the 1 p.p.m. chlortetracycline gave negative assays. Pan frying was slightly more effective than broiling for de-activating chlortetracycline. In either case, small residues of chlortetracycline remained in those fillets that had originally assayed 3 p.p.m. chlortetracycline and more. Pickling processes reduced activity of the antibiotic from 78 to 100 per cent in herring. In canning experiments with haddock, salmon, sardines, and tuna, after the prescribed retorting time for the canned product, no antibiotic remained. In smoking experiments with Alaska cod and salmon, loss of antibiotic activity occurred during cooking of the "hot smoked" product. The smoke itself imparted microbiologic activity, making it difficult to ascertain the precise amount of chlortetracycline degraded during the process. Frying of oysters reduced the amount of chlortetracycline to an average of 16 per cent of the level in the raw product; stewing reduced it to an average of 25 per cent. Frying removed all of the antibiotic from scallops that had contained up to 0.23 mcg. per gram; at higher levels, positive values began to occur. Lower chlortetracycline levels in raw shrimp showed a higher per cent retention after boiling than did higher levels. It is concluded that, for average cooking conditions and normal pickling and smoking procedures, practically no chlortetracycline is found if the anti-

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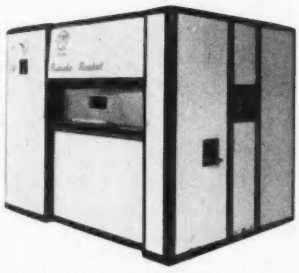

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A Modern Evaluation of Foods. It is suggested that caloric content be related to nutrient content in evaluating foods. Our present knowledge permits the development of tables that would correlate calories and amounts of nutrients in the various food categories (vegetables, fruit, basic foods, and so on.). The author supplies some sample tables of this type.

Analysis of Consumer Preference Data. Results of a recently published article on a consumer survey, in which strawberry ice cream varying in sugar content (15.9, 17.6, 19.2, or 20.8 per cent) was evaluated, were reworked. Using a method analagous to the Terry-Bradley-Davis method of paired comparisons, it was found that the consumer panel preferred both the sample with 19.2 and 20.8 per cent sugar to a statistically significant degree over the other two samples. It is concluded that the method of analysis discussed in the present article is more powerful than the method used by the authors of the original article, since they did not find that the sample with 20.8 per cent sugar was preferred to a significant degree over samples with 15.9 per cent and 17.6 per cent sugar.

GASTROENTEROLOGY

Vol. 38, May, 1960

*Segmental (ulcerative) colitis. H. Yarnis and B. B. Crohn.—p. 721.

Segmental Colitis. Out of 1415 patients with ulcerative colitis seen as private patients over a period of thirty years, 140 cases or 10 per cent were segmented. The age at onset ranged from 3 years to 65 years, the average being 24.3 years. The greatest incidence (53 patients) also occurred in the third decade. Of the 140 patients, 63 were male, 77 were female. In 36 patients, the disease was restricted to the ascending and transverse colon. In many patients, the condition was regional or right-sided in nature, and pathologically was probably granulomatous as well as ulcerative in nature. The treatment prescribed is a non-roughage diet, bed rest, and the use of steroids and antibiotics.

GERIATRICS

Vol. 15, June, 1960

*Nutrition in the aged. T. G. Skillman, G. J. Hamwi, and C. May.—p. 464.

Nutritional Studies of the Aged. A study of the nutritional problems of the aged has been done by the Department of Home Economics of Ohio State University and the Nutrition Clinic of the Ohio State University Health Center. Patients over sixty-five from the Nutrition Clinic served as source material. Sixty-eight per cent of 800 clinic patients were more than 10 per cent overweight and 22 per cent were within 10 per cent of desirable weight. Of the 108 non-diabetic patients, 78 per cent were over-

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weight and only 4 per cent were underweight. The actual degree of obesity varied. Only 8 per cent of these out-patients were underweight. The results suggest that overnutrition, resulting in obesity, is more common than undernutrition. Obesity is acquired prior to old age in many cases, but may be due to decreased activity with the continuation of a high caloric diet. Undernutrition is more common in the chronically ill patient or the poverty stricken.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Vol. 8, June, 1960

*Clinical experience with chlorpropamide and comparative evaluation with tolbutamide. S. K. Fineberg.—p. 441.

*Nutrition and the geriatric patient. M. J. Reddout and Sister A. de Paul.—p. 463.

Chlorpropamide vs. Tolbutamide. A clinical study of the effect of chlorpropamide, one of the newer sulfonylurea drugs, in fifty patients with "maturity-onset" diabetes is presented. Data are compared with the effect of tolbutamide, an older oral hypoglycemic agent, in a similar but smaller group of thirty-five patients selected by the same criteria. The findings of these studies were: (a) chlorpropamide produced satisfactory control of the diabetes in almost twice as great a percentage (76 vs. 43) of patients than did tolbutamide, and excellent control in more than twice as great a percentage (74 vs. 31); (b) the incidence of primary and secondary failures with tolbutamide therapy was notably higher than with chlorpropamide therapy; and (c) with the dosage levels used, chlorpropamide produced as few, and possibly fewer, side reactions than did tolbutamide.

Nutrition and the Geriatric Patient. The role of nutrition in geriatrics is to conserve health and to equip the elderly to withstand the onset of chronic degenerative disease. Inadequate protein intake is not uncommon because of poor teeth, improper cooking, and lack of knowledge pertaining to the types of protein food. Calcium and ascorbic acid are often lacking in the geriatric diet, due to the lack of milk and citrus fruits. Psychologic aspects enter in, and each old person's problem needs special recognition. Community services offer nutrition assistance to the aged through educational materials and services, by financial assistance, and by such projects as "meals on wheels" providing a hot meal and a snack to be delivered daily to the old person in his home.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 173, June 11, 1960

*Leaf protein. G. X. Trimble. Correspondence.—p. 710.

Vol. 173, June 25, 1960

*Excretion of radioiodine in human milk. J. C. Weaver, M. L. Kamm, and R. L. Dobson.—p. 872.

*Diet in coronary atherosclerosis. L. M. Morrison.—p. 884.

*Nutrition in chronic renal failure. Council on Foods and Nutrition. A. J. Merrill.—p. 905.

*Inhibition of food absorption. Foreign Letters–United Kingdom.—p. 929.

*Weight reduction. Foreign Letters–United Kingdom.—p. 930.

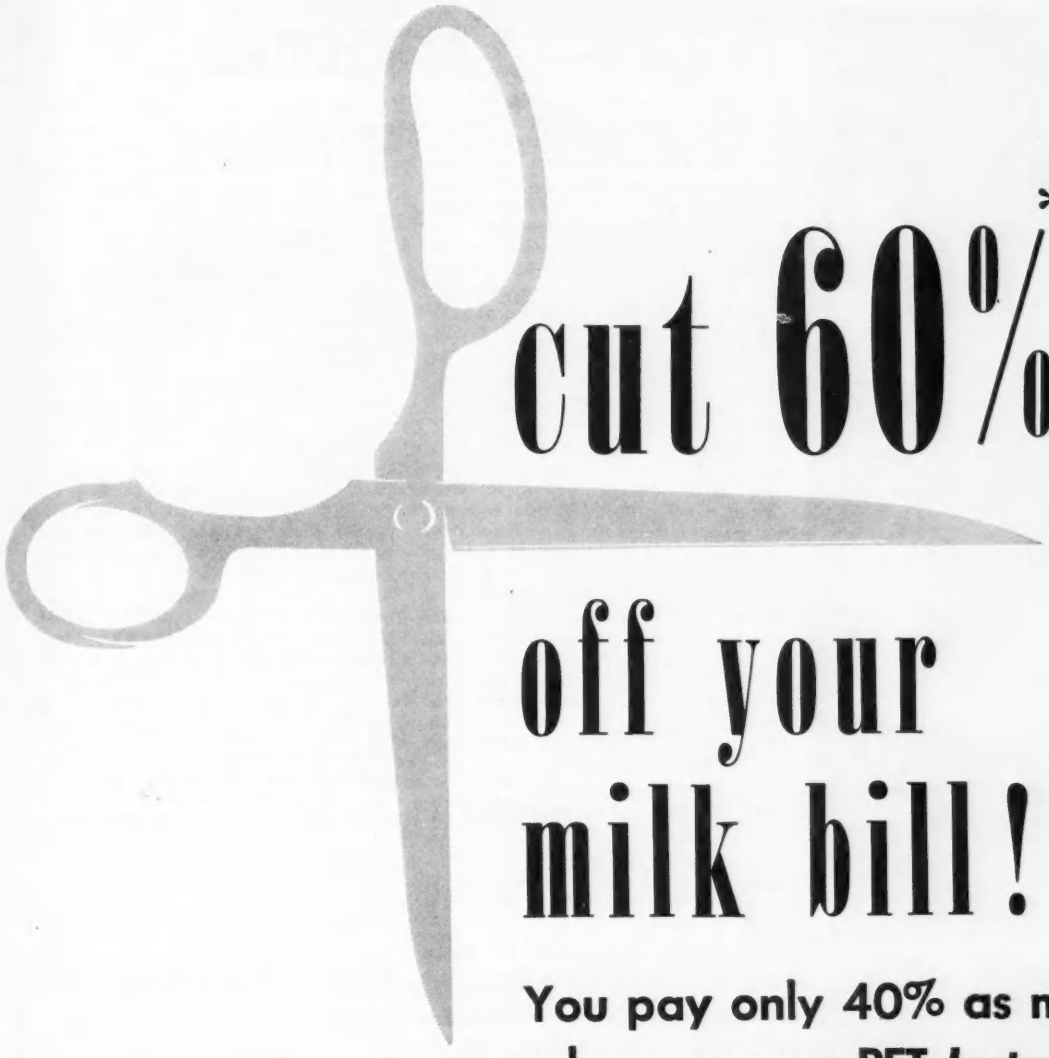
Leaf Protein. This letter is written in the hope that investigators in this country may be stimulated to do research on leaf protein as food. Various reports in *Lancet* are given which demonstrate that leaves can provide proteins which are valuable as human food. In the long run, such work would be more effective than direct financial or material subsidization, which at best affords only temporary relief, for the underprivileged areas in the world.

Radioiodine in Human Milk. The possibility that radioiodine (I^{131}) administered to a lactating woman might appear in the milk and might reach the infant in harmful amounts was studied in six nursing mothers. Most of them were already in the process of weaning their babies. The I^{131} was given by mouth to the mother in doses of either 10 or 30 microcuries just after the final breast feeding. The quantity of I^{131} which appeared in the milk secreted in 48 hr. after administration was 1.4, 3.9, 0.14, 0.03, 6.2, and 26.8 per cent of the total that had been administered, respectively, to the six mothers. Most of the I^{131} was secreted during the first 24 hr. It is recommended that nursing be interrupted for 24 hr. in women taking diagnostic tests with I^{131}, or in the case of a large diagnostic or therapeutic dose, until measurements indicate that the I^{131} content of the milk is no longer significant.

Diet in Coronary Atherosclerosis. The nutritional approach to the treatment of atherosclerosis was tested in 100 patients with proved coronary atherosclerosis. Fifty were treated with a low-fat, low-cholesterol diet. The other fifty patients received no specific treatment and served as controls. By the end of twelve years, nineteen of the fifty patients treated with the diet survived; of the fifty control patients, all had died. The total daily fat intake in this diet was 25 gm. Animal fats were eaten in minimum quantities. Large-scale trial under controlled statistical conditions encountered in clinical practice is suggested for further evaluation of the role of fat in coronary atherosclerosis.

Nutrition in Chronic Renal Failure. Management of chronic renal failure involves a knowledge of the various chemical abnormalities that are likely to occur with different types of renal disease. These abnormalities plus aims and procedure of treatment are discussed. The best diet for the average patient with advanced renal failure consists of 35 to 50 gm. animal protein, chiefly, 4 gm. salt (or 2 gm. sodium chloride and 2 gm. added sodium bicarbonate), 70 gm. fat, and from 150 to 400 gm. carbohydrate.

Inhibition of Food Absorption. A new approach to weight reduction was



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made when it was accidentally discovered that a constituent of a well known bactericide curbed food absorption in rats. The compound, trimethylhexadecyl ammonium stearate, was given to a healthy man who lost 20 lb. while taking it. This loss was reversible. It is thought that this drug causes loss in weight by interfering with food absorption. Possibly it acts by hindering enzyme action. If it only causes diminished absorption of food without interfering with the absorption of essential nutrients, it might have a place in the treatment of obesity.

Weight Reduction. Many diets for weight reduction are based on the statement by Kekwick and Pawan that during short periods of isocaloric submaintenance diets, loss of weight is greater when most of the calories are supplied by fat. These results were disputed by Pilkington and co-workers who repeated the experiments for longer periods. They showed that no significant difference was found in the rate of weight loss, regardless of whether the isocaloric submaintenance diet was high carbohydrate, high fat, or high protein. The authors attributed the results obtained by Kekwick and Pawan to dietary studies that were made over too short a period. The loss in weight could have been due to changes in fluid balance.

THE JOURNAL OF CLINICAL INVESTIGATION

Vol. 39, May, 1960

*Myocardial metabolism of fatty acids. F. B. Ballard, W. H. Danforth, S. Naegle, and R. J. Bing.—p. 717.

Myocardial Metabolism of Fatty Acids. The myocardial extraction and usage of total and free fatty acids (FFA) have been determined in patients and in dogs. In the postabsorptive state, significant amounts of both esterified and free fatty acids were extracted by the myocardium. The determination of the iodine numbers in plasma revealed that there was proportionately greater usage of saturated than of unsaturated fatty acids by the heart. The ingestion of a fat meal increased both plasma concentration and myocardial extraction of FFA. Heparin induced in man and in fasting dogs a fall in the plasma concentration of total fatty acids and an increase in the concentration of FFA. These studies demonstrate that esterified fatty acids account for more than half of the total fats extracted by the myocardium. Under these experimental conditions, the myocardial extraction of free fatty acids in given patients and animals usually depended on their respective arterial concentrations.

JOURNAL OF HOME ECONOMICS

Vol. 52, May 1960

*Popularizing the food additive story. M. Burns.—p. 342.

*Frozen fillings for quick lemon meringue pies. P. R. Snow and A. M. Briant.—p. 350.

Vol. 52, June, 1960

*Yield of cooked meat from different types of poultry. E. H. Dawson, G. L. Gilpin, and A. M. Harkin.—p. 445.

The Food Additive Story. Home economists can do much to remove some of the mystery from food additives and to explain to the American public the controls which govern food safety. Reported here are the methods used by the New York State College of Home Economics at Cornell University during Farm and Home Week in March 1959. The functions of food additives were brought out through audience participation (answers to the question, "What do consumers demand in a loaf of bread?"). Slides and actual food labels read by the audience were the major visual aids employed. Typical foods from such groups as bread and cereals, fats and oils, prepared foods and mixes, and specialty items, such as dietetic foods, were discussed. Chemical terms were explained as to their function in each product. Legislation which safeguards the American food supply was also brought into the picture. This article provides excellent background material for anyone preparing a talk on food additives.

Frozen Lemon Meringue Pie. To take from the freezer, thaw, and serve a lemon meringue pie is still an unfulfilled dream of a busy homemaker. This study revolved about the question, "Can the lemon filling and egg whites for the meringue be frozen separately and then thawed for the completion of the pie as soon as the shell is baked?" Procedures used in the study are described. The effect on flavor of adding the juice and rind at different stages was noted, too. Highly acceptable fillings were made by adding both lemon juice and rind to cooked fillings cooled to 120°F. All fillings after freezing and thawing over hot water returned to the smoothness and consistency of the freshly-made fillings. Freezing the fillings saved a little total time, allowed greater freedom of choice as to when fillings might be made, simplified and speeded pie preparation, and decreased the time pressures associated with mealtime preparation of lemon meringue pies.

Meat Yields from Poultry. Summarized here is information on the effect of cooking chickens, ducklings, and turkeys by various home-type methods on the yield of cooked meat, fat, skin, and bones. These data are the basis for establishing buying guides for homemakers and large-quantity food buyers. Procedures are described. The yield of cooked lean meat without fat and skin was 46 per cent (of the ready-to-cook weight) for turkeys, 41 per cent for chickens, and 22 per cent for ducklings. Based on 1958 wholesale prices, chicken and turkey were more economical than duckling as sources of protein, whether yield of lean meat or total yield of meat, fat, and skin was used to calculate cost.

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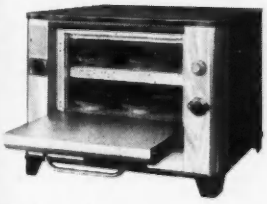
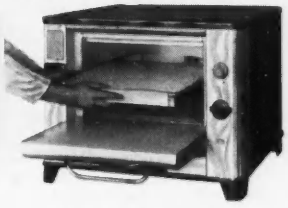
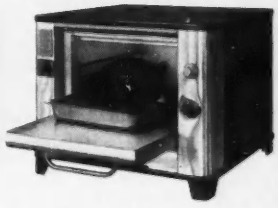


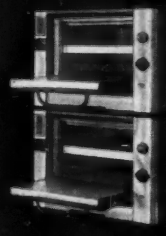
With center shelf in, unit provides two baking compartments, each 20"x20"x4". Three electric heating units in top, center shelf and bottom give intense heat, trigger-quick recovery.



Center shelf slides out easily. Two-in-one timer can be set for cooking cycles of 6 or 60 minutes.



With center shelf removed, unit provides single 20"x20"x10½" roasting compartment. With automatic temperature controls you dial the heat you want and the thermostat holds it.



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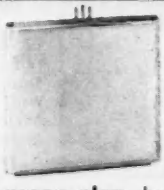

Three-prong plug, built into back of center shelf, plugs its heating element into the main electrical system when the shelf is in use.

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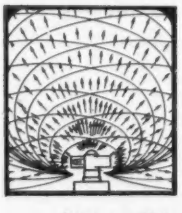

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THE JOURNAL OF NUTRITION

Vol. 71, June, 1960

*The absence of hemorrhagenic compounds in irradiated beef. M. S. Mameesh and B. C. Johnson.—p. 122.

*The effect of exercise on nutrient utilization with special reference to calcium. F. Konishi and C. M. McCay.—p. 125.

*Amino acid requirements of children. I. Nakagawa, T. Takahashi, and T. Suzuki. —p. 176.

Irradiated Beef and Vitamin K Deficiency. Studies of the nature of the hemorrhagic syndrome observed in rats fed irradiated beef indicated that the syndrome was caused by a lack of vitamin K and not by any hypoprothrombinemic factor in irradiated beef. This was based on the observations that: (a) when the level of irradiated beef in the diet was increased, the incidence and severity of hemorrhages decreased; and (b) the vitamin K requirement of rats prevented from eating their feces but fed a diet high in irradiated beef was the same as that reported for similar rats fed a purified diet.

Exercise and Calcium Utilization. Balance studies were conducted using dogs to investigate the effect of exercise on nutrient utilization with particular reference to calcium. The animals were exercised immediately after and 1 hr. after consuming diets relatively high in either protein, fat, or carbohydrate. A highly significant decrease in the apparent absorption of calcium was observed during the exercise periods. Urinary excretion and retention of calcium, phosphorus, or nitrogen were not significantly different during the exercise. The utilization of dry matter, ether extract, and carbohydrate also were not influenced by the level and duration of the exercise. There were no apparent dietary and exercise interrelationships. The physiologic responses to exercise and their probable effects on calcium utilization are briefly discussed, as well as the relationship of dietary fat to calcium absorption.

Amino Acid Requirements of Children. In this study, the amino acid requirements of school children were investigated. On the basis of nitrogen balance, it was estimated that the school children require two or three times as much essential amino acid mixtures as adults, if the Rose's pattern for essential mixture is not unbalanced for children. Total nitrogen is insufficient at a level below 10 gm. for children twelve to fourteen years old.

THE LANCET

No. 7136, June 4, 1960

*Non-esterified and esterified fatty acids in hepatocellular disease. B. L. Wajchenberg, G. Hoxter, E. H. L. Mello, and A. B. U. Cintra.—p. 1218.

*Chronic pancreatic disease and protein malnutrition. A. G. Shaper.—p. 1223.

Fatty Acids in Hepatocellular Disease. The levels of nonesterified fatty acids and esterified fatty acids in the plasma were determined in twelve normal controls and eighteen patients with liver disease. The level of nonesterified fatty acids was significantly higher in liver disease, but the levels of esterified fatty acids showed no such difference. The findings suggest that in liver disease, the removal of nonesterified fatty acids from the plasma is impaired.

Chronic Pancreatic Disease and Protein Malnutrition. Long-continued malnutrition may well lead initially to functional, but later to structural, changes in the adult pancreas. To assess the relation of pancreatic damage in childhood to possible increased susceptibility to protein deprivation in adult life is difficult, but one need not assume that this is a prerequisite for pancreatic damage in adults. The additional or aggravating factors which determine why some and not others on low-protein diets develop pancreatic damage may be hookworm infestation, malaria, or intercurrent illnesses, such as tuberculosis, cirrhosis, or chronic renal disease. Almost certainly, patients with pancreatic fibrosis and atrophy without calcification have the same basic condition as those with calculi, calcification being the result and not the cause of a chronic pancreatic disorder.

NURSING OUTLOOK

Vol. 8, June, 1960

*Nutrition in a collegiate basic nursing curriculum. J. C. Greene.—p. 314.

*What every nurse needs to know about nutrition. M. E. Newton.—p. 316.

Nutrition in the Nursing Curriculum. The nutrition content of the four-year basic program at Boston University School of Nursing is described. It has been designed to present and develop nutrition concepts within the framework of the philosophy and objectives of the total curriculum. Rather than the traditional pattern of separate courses in foods, nutrition, and diet therapy, a continuous "thread" of nutrition has been worked through the entire curriculum. In the freshman year, chemistry, physiology, and anatomy of the digestive system, the chemistry of carbohydrates, proteins, fats, minerals, and vitamins, and the sanitary aspects of food handling are included in human ecology, an integrated science course. Other aspects of nutrition are taught in courses in fundamentals of nursing. The second year is the last time that a class as a whole has concurrently similar classroom and clinical experiences; some of the content of the traditional diet therapy course is included at this time. During the third and fourth years, students have experiences in seven clinical fields; the most valuable nutritional learning experiences of each field were determined by survey. Further details of the program are explained.

The Nurse and Nutrition. The basis for this article is a set of concepts, "Understanding and Abilities Needed by Nurses in Relation to Nutrition

Thank you teachers, nutritionists, health educators, food editors, and food writers for your support of Better Breakfasts over the past decade. This is the 10th Anniversary of September Better Breakfast Month. Your interest in improving our Nation's health and well-being through Better Breakfast activities is appreciated.

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and Diet Therapy," developed by an inter-organizational committee of A.D.A. and the National League for Nursing in 1957. This material was circulated to state organizations for comment and discussion. In California, representatives of the two state groups decided to focus their attention on the identification of understandings in nutrition which every nurse needs. The resulting outline includes the following main points: (a) common tools used in the planning and evaluation of diets; (b) factors which influence food intake, (c) nutrients in food, and (d) reliable resources. The committee recognizes that the material is on a relatively high level of abstraction, but this was felt necessary to permit modification to meet particular needs. It has been suggested that the next step be concerned with learning experiences, a more definite set of behavioristic objectives, and ultimately, some evaluation tools.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 262, June 2, 1960

*Soybean goiter: Report of three cases. T. H. Shepard, G. E. Pyne, J. F. Kirschvink, and M. McLean.—p. 1099.

Vol. 262, June 16, 1960

*Pyridoxine-responsive anemia. A. J. Erslev, A. A. Lear, and W. B. Castle.—p. 1209.

Soybean Goiter. Three children in whom goiters developed on soybean milk are described. Although they were clinically euthyroid, their protein-bound iodines were of low normal levels. The I^{131} uptakes were high and became normal when the soybean milk was discontinued. The goiters became much smaller or disappeared in two cases when the soybean milk was discontinued; in the other child, it disappeared when iodine was added to the diet. The pathogenesis is discussed. The major amount of evidence seems to support an iodide-lack type of goiter.

Pyridoxine-Responsive Anemia. A fifty-two-year-old man with a chronic mild hematologic disorder characterized by hypochromasia and microcytosis was followed closely for seven years through eight stormy episodes of severe hypochromic anemia associated with high serum iron. The first episodes were terminated after infusion of blood or plasma and the last episodes after the administration of pyridoxine. Metabolic studies with tryptophan supported the clinical impression that this patient was suffering from intermittent pyridoxine deficiency.

NUTRITION REVIEWS

Vol. 18, June, 1960

*Biased criticism of fluoridation. J. M. Dunning.—p. 161.

*Treatment of hypercholesterolemic patients with niacin, sitosterol and safflower oil.—p. 174.

Biased Criticism of Fluoridation. Dr. Sutton, a Senior Research Fellow at the University of Melbourne Dental School and apparently without field experience in the epidemiologic study of fluoridation, has devoted himself to a critical analysis of the printed reports of the long-term pilot studies of water fluoridation made in Grand Rapids, Michigan; Evanston, Illinois; Brantford, Ontario; and Newburgh, New York. His criticisms, which are purely destructive, deal chiefly with four of the more important aspects of project design: adequacy of controls, randomization of sampling procedure, adjustment of sample size to compensate for variability in caries attack rate, and variability or bias of examiner. In this article, Dr. Dunning of the Harvard School of Dental Medicine, points out the shortcomings of Dr. Sutton's criticisms. He also includes comments by the principal investigators in the four areas which were addressed to the President of the Australian Dental Association. It is tragic that Sutton's work will be read by a public often unable to appreciate its defects or to learn in detail the other side of the case. It is felt that his report will delay further the fluoridation of municipal water supplies in Australia.

Niacin, Sitosterol, and Safflower Oil. This report describes an experimental method whereby hypercholesterolemia can be reduced without dietary change or undue risk. Combined therapy of

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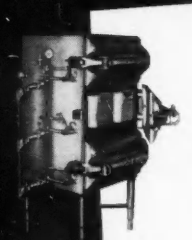

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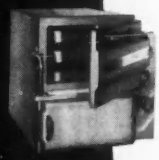

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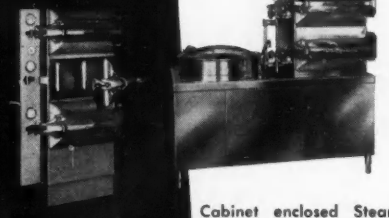

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nine patients with both sitosterol and niacin (average dose 4.3 gm. per day) resulted in a mean decrease in cholesterol level of 25 per cent when compared with the level during placebo administration (346 mg. per 100 ml.). On the other hand, administration of 4.3 gm. niacin alone caused only a 17 per cent decrease in cholesterol level, and sitosterol alone, a 12 per cent decrease. One oz. safflower oil three times daily caused a 6 per cent decrease. Side reactions which accompanied niacin were flushing, itching, and gastrointestinal distress. Neither sitosterol nor safflower oil caused any discomfort other than unpalatability and a tendency to cause loose stools. This combination of niacin and sitosterol should be considered an investigational form of therapy and should not be adopted as a routine measure until more experience has been gained.

PEDIATRICS

Vol. 25, June, 1960

*"Sporadic" hypophosphatemia and vitamin D-resistant rickets. Report of a case. R. W. Winters, V. W. McFalls, and J. B. Graham.—p. 959.

*Amino acid excretion in urine of normal infants and children. Paper chromatographic methods for amino acid analyses. H. K. Berry.—p. 983.

Vitamin D-Resistant Rickets. Simple vitamin D-resistant rickets is generally a hereditary condition. Cases where no relatives are affected have been reported, and these have been regarded as "sporadic" and non-hereditary. These "normal" relatives, however, may prove capable of transmitting the condition. This can be determined by the findings of hypophosphatemia. The authors reported the case of a seven-year-old girl with severe vitamin D-resistant rickets. Genetic and chemical studies of thirty of her relatives are presented showing no evidence of disease or capability of transmitting the disease. In such cases, the authors suggest some mechanisms which might explain a "sporadic" hereditary condition. The possibilities of homozygosity for an unrecognized autosomal recessive form or of a new mutation are more likely than its being acquired.

Amino Acid Analyses. Using paper chromatographic techniques, fasting morning urine of normal infants and children were studied for individual amino acids. The values obtained were expressed in relation to creatinine which is excreted in more or less constant amounts a day, regardless of dietary protein intake. This allows comparison of patterns of urinary excretion in individuals. Urinary glycine and alanine decreased with age and were probably related to better renal function. Infants fed cow's milk showed greater concentrations of valine, leucine, lysine, tyrosine, Unknown 35, glutamic acid, and threonine than those who received human milk. The general pattern of excretion in those fed with Similac, Probana, soybean preparations, and Nutramigen was similar to that of infants fed on human milk. Decreased excretion of glycine was observed in one infant who was fed on a milk formula of evaporated cow's milk.

PUBLIC HEALTH REPORTS

Vol. 75, June, 1960

*A food poisoning outbreak aboard a common carrier. C. J. Hart, W. W. Sherwood, and E. Wilson.—p. 527.

**Escherichia coli* strains as etiological agents of diarrheal disease. F. J. Payne.—p. 534.

A Food Poisoning Outbreak. In the spring of 1959, a special railway train carrying visitors to a national conference was the source of one of the largest outbreaks of food poisoning on record in this country. Of 450 passengers aboard, nearly half were affected, twenty-five of whom required hospitalization. Although the causative factor of this outbreak has not yet been conclusively identified, the need for greater care in the handling of food served to the public is emphasized. It indicates the need for adequate facilities to do a safe job and the need for additional training and supervision of those employees to whom the health of the traveling public has been entrusted. Finally, the outbreak has served to alert health officials that enterococci and *C. perfringens* should be considered as possible causative organisms in food poisoning cases and

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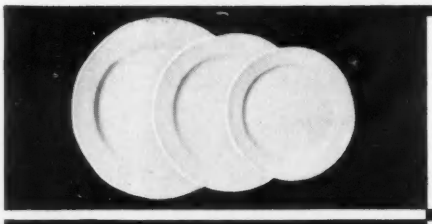

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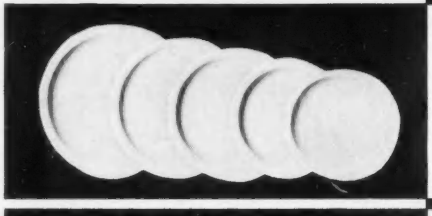

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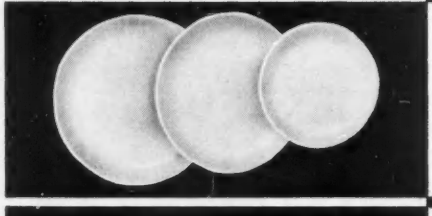

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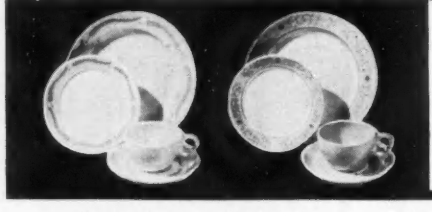

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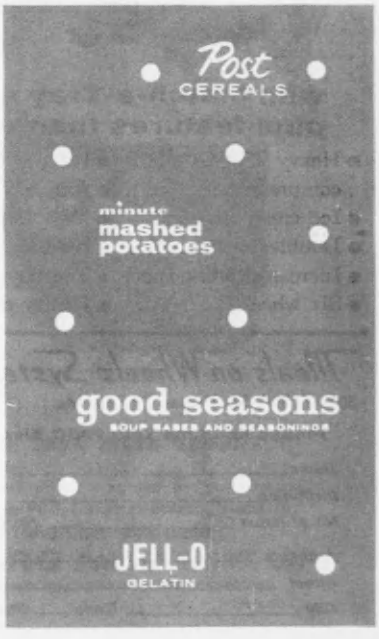

that there is an immediate need to equip our laboratories for the identification of these organisms.

***E. Coli* Strains and Diarrheal Disease.** This paper reviews the currently available evidence concerning *E. coli* strains as etiologic agents of diarrhea. There appears to be a cause-and-effect relationship between at least three serotypes of *E. coli* and diarrhea of the newborn. In addition, there appears to be a relationship between eight or nine other serotypes and this disease. Perhaps still others will be found in the future. The natural history of these types outside hospital walls remains obscure, but they constitute a leading cause of cases of severe diarrhea among infants under two months of age whose onsets are at home as well as in the hospital. There is no assurance that environmental control measures now in vogue for diarrheal diseases will be effective in the control of these agents.

DRIVE-IN MANAGEMENT

Vol. 19, June, 1960

*Your decisions and you. D. E. Lundberg.—p. 26.

Making Decisions. Decisions, in large measure, determine one's success. Deciding what is important is one of the executive's most important problems, and the process of decision-making has been made the subject of many university courses and refresher institutes. Decisions can be divided into three levels: (a) those concerned with broad policy matters and objectives; (b) those necessary to implement the broad goals; and (c) those which are the day-to-day "near habit" kind. The first or broad-level decisions determine the format and style—the direction—an operation will take. Management's constant efforts should be to so set up the organization and the operation that more decisions are in the third level—the "near habit" level. Systems and controls are introduced so that anything that can be done routinely is so done. Examples of the decision-making process as applied to a drive-in are included.

FAST FOOD MAGAZINE

Vol. 59, June, 1960

*Hire—don't fire.—p. 48.

*General Mills finishes survey on recipe cards.—p. 68.

Reduce Labor Costs. Two basic ideas for running an efficient operation have been proved at a sixty-eight-seat fountain: employ a staff large enough to carry out the duties of the operation; and, have a written schedule for every person and every activity. The increase in staff not only resulted in specific increase in service but also simplified the fair scheduling of duties. Complete schedules are written and posted for grill and fountain men, waitresses, dishwashers, and managers. Each schedule describes duties, hours-on-duty, and days off. Other written forms are meeting with success—a "request for substitution of regular shift" form (points out any employee requesting substitutions too frequently); a "personnel pending" form (used for a backlog of new employees); and a "take ten" form (a 10-min. assignment to clean an out-of-the-way spot).

Recipe Card Survey. General Mills recently conducted a spot survey of more than four hundred of its customers to learn the size of recipe card most preferred by the institutional trade. A card measuring 4 by 6 in. was the most popular; 189 users preferred this size. Eighty-five preferred 5 by 7 in. cards; 68 liked 3 by 5 in. forms; the 5 by 8 in. size was the choice of 58; and only 3 wanted 8½ by 11 in. forms.

FOOD ENGINEERING

Vol. 32, June, 1960

*Why A-rays discolor salt. K. Ladenburg and A. Bloomberg.—p. 55.

*Functional-plus foil tray.—p. 94.

Discolored Salt. Ionizing radiation produces a discoloration in salt crystals regardless of their purity. The change is reversible, the crystals resuming their original color on heating. One striking effect of a nuclear test explosion in 1956 was the yellowing of table salt. It was believed that

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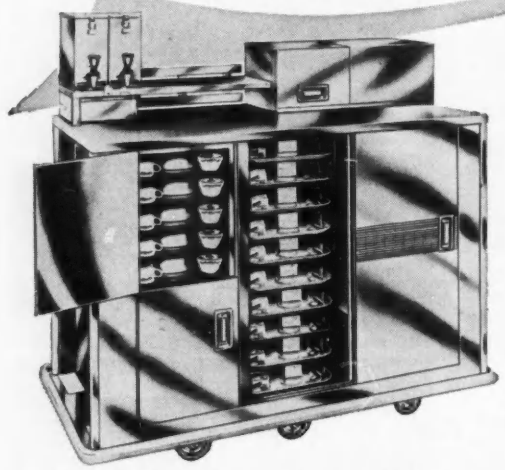


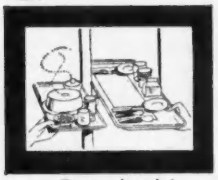
with Match-a-Tray and more plus features than all others

- Heavy Duty ¼ H.P. compressor
- Ice cream freezer
- Double oven doors
- Increased work space
- Six wheels
- Rugged corner bumpers
- Ample vertical clearance
- Two "Hot or cold" beverage containers
- Toaster outlet
- Utility drawer

HOW MATCH-A-TRAY WORKS:

1 Patient-tray — cold items.

2 Match-A-Tray — hot items.



3 Trays placed in corresponding hot and cold compartments.

4 At serving point Match-A-Tray hot items transferred to patient-tray.

5 Tray delivered to patient — hot foods hot — cold foods cold.

Meals-on-Wheels System
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No. of floors _____ No. of beds _____
Architect _____
Street _____
City _____ Zone ____ State _____

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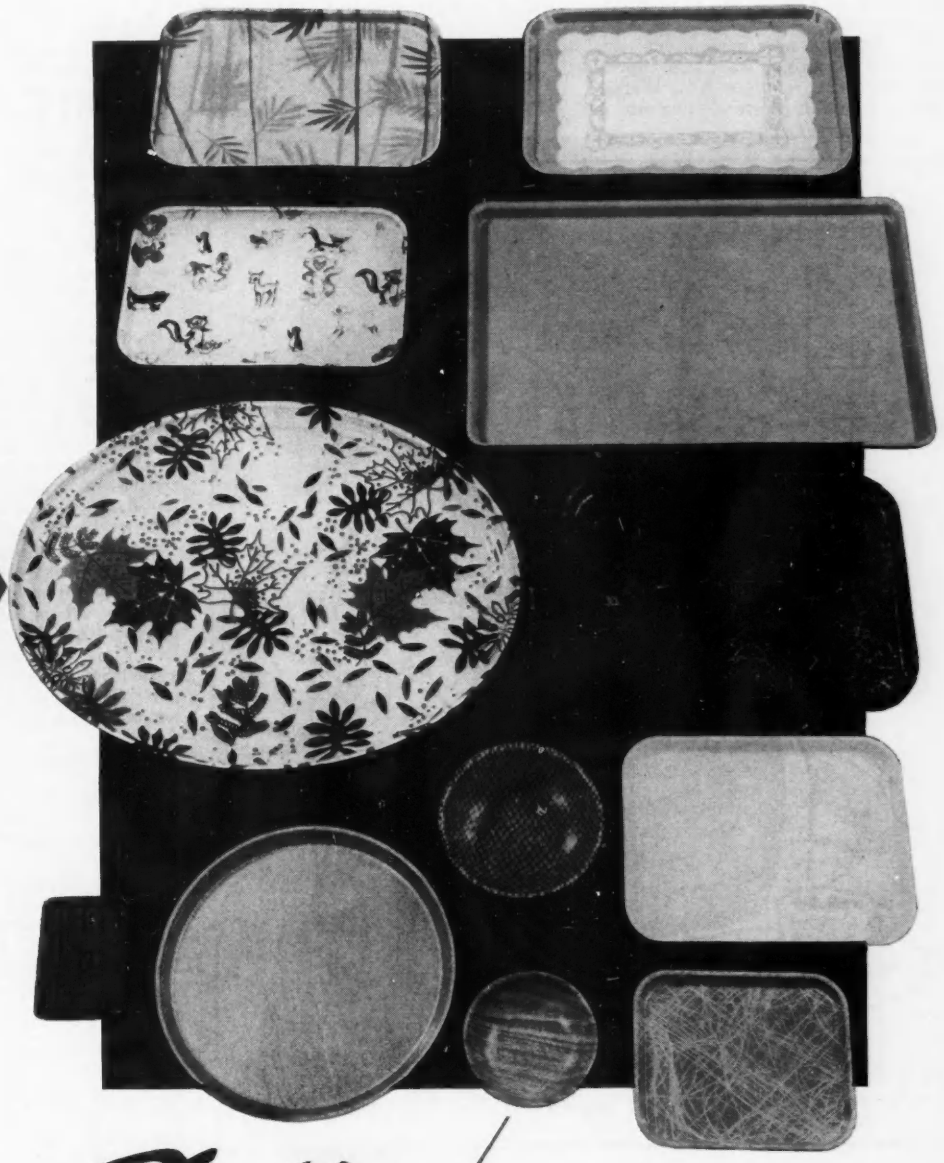

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Oct. 18-20—BOOTH 417

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liberation of free iodine was responsible, but chemical analysis failed to confirm this. In development of food preservation methods using ionizing radiation to produce bacteria and mold-free material, the discoloration of salt might be objectionable. With this in mind, a cooperative study with the QM Food and Container Institute was initiated. Procedures of the study are described. It was found that the discoloration is due to phase transformation in crystals, not to additives or impurities.

Foil Tray. A new institutional-size rigid foil container has been developed for frozen entrées. This disposable tray, one-third steamtable size is adaptable for packing, freezing, shipping, heating, and serving. One meat packer now packs 27 different frozen precooked entrées in the 3-lb. aluminum serving pans for inplant feeders and industrial caterers. Another meat company has also adopted the new trays. The trays are well received in the institutional field, particularly since they are disposable, abolishing the cleaning of steamtable pans.

FOOD SERVICING MAGAZINE

Vol. 22, June, 1960

*The right equipment makes the best coffee. H. Sanstadt.—p. 44.

Electric Coffee Makers. Coffee standards can never be too high. The right equipment is demanded, and today there is a type of coffee maker for every classification of food service. The modern coffee brewer is easier to clean and keep clean. The materials which are used in its fabrication have been developed and utilized to virtually eliminate time-consuming labor. Models run from the type that mixes liquid coffee concentrates with boiling water and portions it out into cups, to the electronic coffee maker that runs fresh boiling water through the proper amount of grounds and turns off the water when the decanter is full. Even the urns have taken new shapes and sizes (squarer, lower models), and better ways have been devised to handle the coffee grounds. Fifteen current models of coffee makers are illustrated.

HOSPITALS

Vol. 34, June 16, 1960

*Summertime foods for weather appeasement. —p. 79.

Summertime Desserts. Desserts lend themselves easily to summertime treatment. Fresh peaches, pears, and berries, as well as limes and lemons, are in ample supply and good buys. Furthermore, with the use of mixes and prepared items, preparation time can be cut. Many desserts can be prepared, baked, and frozen until shortly before tray assembly, eliminating excessive handling at service time. Thirteen dessert suggestions are given. Quantity recipes are given for Spanish cream, minted apple angel pie, fruit-filled Mary Anns, cranberry frosty pie, milk chocolate chiffon pie, glazed banana tarts, fresh fruit compote, cantaloupe Alaska surprise, and lemon chiffon pie.

INSTITUTIONS

Vol. 47, July, 1960

*Have truck, will travel.—p. 28.

Trucks in Food Service. Presented here is a survey of the current use of trucks in mobile food service. One type is illustrated by the emergency kitchen-serving unit model recently delivered to the Civil Defense and Public Safety Department of the State of Maine. It is mounted on a 1½-ton, forward control type of chassis. Inside the body, cooking and serving equipment includes a gas range, steamtable, and coffee urns, all operable on propane gas. Hot food prepared in the mobile unit is served through the rear of the truck which opens to full width and is illuminated by floodlights. Food trucks are not limited to emergency situations. Lunch trucks are finding wide acceptance in the West where industry is so spread out that mobile food handling is almost essential. In July 1959, it was estimated that 750,000 meals daily were being served from about two thousand lunch trucks in Southern California alone. A typical lunch truck for this purpose is described. Drivers of these trucks operate on carefully worked out

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Precision corrugation...unlimited flexibility assures patient comfort with minimum staff attendance. Single Sanitary Service. Use in **hot** liquids; hygienically treated with 190° micro-crystalline wax. **There's a money saving angle too!** New Lower Prices permit use in all wards. We'll be delighted to send a generous sample package.

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schedules, often making the same stops daily. A practiced lunch truck operator can serve as many as 350 coffee-break patrons in 15 min. Probably the latest entry in this field of food service is a mobile cafeteria housed in the body of an ordinary panel truck. The entire cafeteria unit slides out of the rear of the truck and provides a double cafeteria line consisting of six compartments accessible from either side. Features of this and the other mobile units are described and pictured.

RESTAURANT MANAGEMENT

Vol. 86, June, 1960

*Salads from first course to last. A. Easton.—p. 76.

*It's up to you.—p. 80.

Salads. Today, the trend in salads is to use them as dessert; and the appetizer salad is popular in some localities. Since salads will fit in with any course, it is important that they be planned according to their place on the menu. The appetizer salad should be light with a tart or salty dressing. A main course salad should have protein equal to a serving of meat, fish, or poultry; heavier dressings such as mayonnaise, Russian, roquefort, or sour cream with chives are suitable. In dessert salads, sweeter fruits are used. Sixteen combinations of fruit for dessert salads are given. Several more unusual combinations for small salads to accompany the main course are suggested. The three main types of salad are described: (a) the bowl salad, usually of tossed greens with or without other foods; (b) the plate salad, served as the main dish; and (c) the jellied salad. Hints for arranging the component parts of a salad, taking it out of the ordinary class, give one a glimmer of the versatility of salad.

Possibilities with Seafood. Over two hundred varieties of fish and forty varieties of shellfish are sold in U.S. markets; yet, very few varieties are listed on restaurant menus. This is unfortunate when one considers the amazing improvements in methods of handling and merchandising. But whatever the fish, cooking is of prime importance—never over-cook it. Cost comparison is another factor, now that the price of some fish equals that of meat and exceeds that of poultry. Steaks and fillets often cost more per pound than dressed fish, but may cost less per serving. A helpful chart, prepared by the USDA, lists the edible portion and servings per pound of whole, dressed, steak, and fillet fish. More unusual methods of preparation of such items as shrimp, anchovies, scallops, and oysters are noted, flavoring hints are given, menu combinations are suggested, and several recipes are included.

SCHOOL LUNCH JOURNAL

Vol. 14, June, 1960

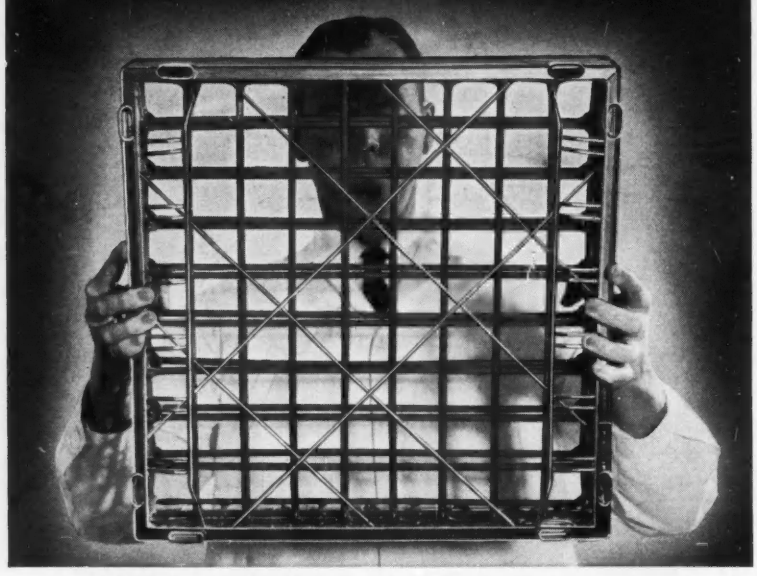
*Uses of nutrition research. C. G. King.—p. 39.

*"Of course, it didn't actually happen." J. N. Perryman.—p. 49.

Uses of Nutrition Research. Living in an age of abundance and good nutrition, when compared with many parts of the world, does not mean that we have reached a final goal by any means. We have not learned to curb our appetites or to eat regularly enough to take advantage of our great privilege. Nutrition education should begin with the parents; then, step by step, children should be taught the principles of good nutrition as a normal and desirable part of living. With these thoughts in mind, Dr. King presents a review of current nutritional knowledge, covering the field of protein and carbohydrate requirements, minerals and vitamins, and fat metabolism. He stresses the fact that a diet selected with reasonable care from the food supply available to the American public will furnish all of the nutrients thus far identified as essential for optimal health, without resorting to bizarre practices or wasteful management of one's purchases. Two factors which demand more of our attention are the need for diminishing caloric intake with increasing age and the relation of eating to exercise (the problems of substitution of entertainment for physical recreation, and irregularity of exercise).

Taking Care of a Guest Speaker. In

DON'T LET THEM PULL THE WIRE OVER YOUR EYES!



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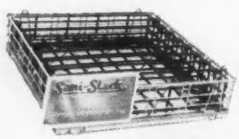
The superior, specially compounded, plastisol that prolongs chinaware life and muffles sound, is firmly and permanently bonded to the metal, guaranteeing long wear.

And there's a lot more to look for! For example, you can be sure that Sani-Stack's heavy chrome plating (by test, 6 times heavier than the average commercial plate), applied and controlled right in the Metro plant, will stay put. Sani-Stack racks have exclusive patented features, they're made with specification steel, welded with fool-proof automatic equipment. Thirty years experience guarantees the best know how.



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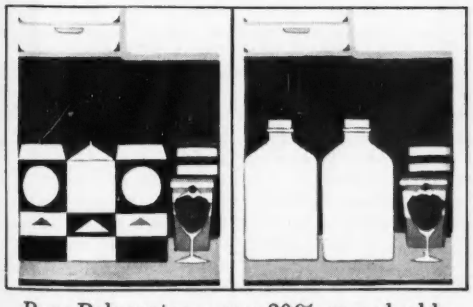

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Cafeteria lines move quickly and smoothly when the handy half-pint size is used.

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arranging for local meetings, many difficulties can be avoided if the guest speaker is treated with the same hospitality and consideration you would extend to guests in your home. Included in the article are points to cover in correspondence with the speaker: the subject of arrivals—whether or not to meet the guest, and welcoming procedures. Other hints include the importance of using both inspirational and factual, instructional speakers—but not on the same program. Equipment and facilities are other considerations which require thought and pre-planning.

THE MODERN HOSPITAL

Vol. 94, June, 1960

*Wine is fine for hospital cookery. F. B. Floore.—p. 134.

*Put those mental notes in writing. G. W. Pfeffers.—p. 142.

Wine Cookery. Wine is one of the most versatile flavoring agents known and adds a gourmet touch to most any dish. Since many hospital patients need to be cajoled into eating, it is well worth exploring the wide field of delicate, tempting dishes opened by the use of wine. Domestic wines, coming in gallon and half-gallon jugs, are just as satisfactory for cooking as vintage or Chateau varieties, and much easier on the budget. Dry wines are preferable to sweet wines; those most often used in cooking are sherry, sauterne, marsala, madeira, claret, port, and burgundy. A host of soup and appetizer suggestions to encourage flagging appetites are given (clear tomato soup with sherried whipped cream, cream of chicken and celery soup flavored with madeira, and so on). The three basic sauces are described: (a) Bechamel or white sauce (flavored with dry white wine) used with fowl, seafood, vegetables, and veal; (b) brown sauce made with meat stock or bouillon to which smooth, red wine is added and used with beef, mushrooms, venison, and pork; and (c) veloute sauce, made with stock of fish, veal, chicken, or beef, to which marsala, sauterne, or sherry is added (veal gratin au marsala is an example). Delectable dishes are described using eggs, chicken, fish, and veal. Dessert possibilities are mentioned, too.

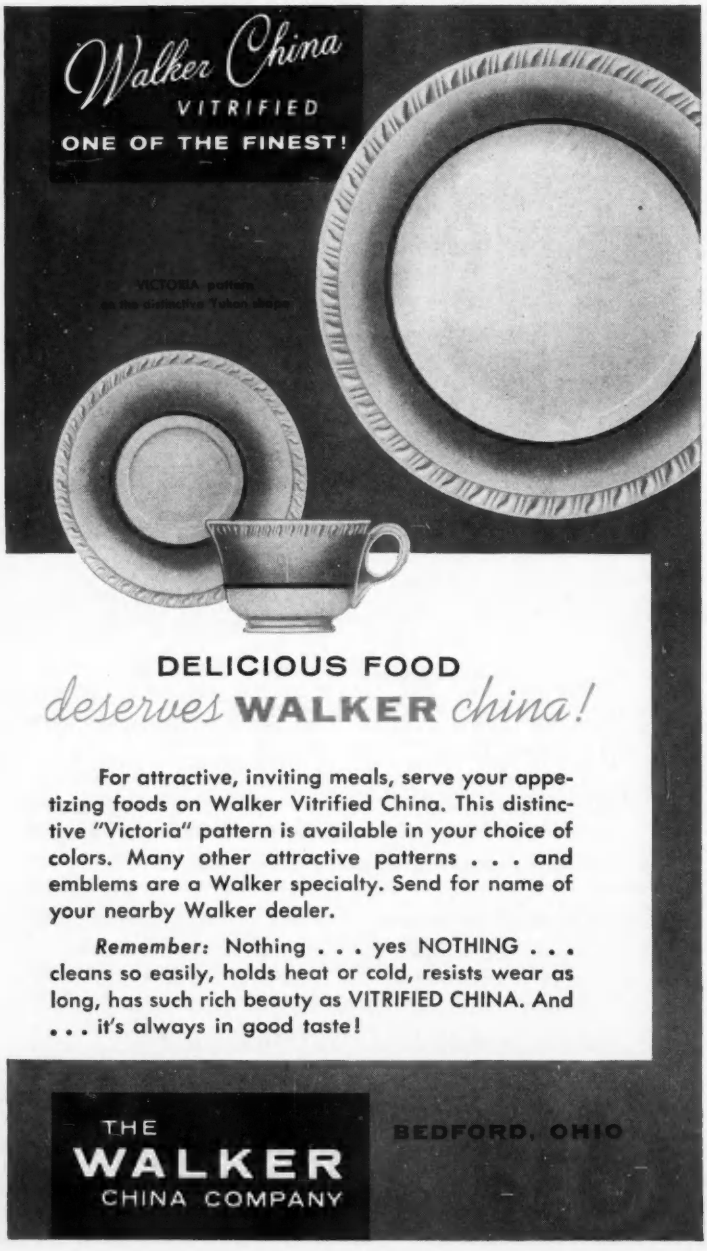
Mental Notes. A mental note is no better than the memory it's filed in—and nobody else can read it. Regardless of the established set-up, a hospital food service department cannot be fully efficient unless there is adequate supervisory follow-up communication. One way to establish effective communication is through the use of *written self-reminders.* Every supervisor should develop the habit of keeping scratch paper and pencil in his pocket at all times, write notes, and follow them up habitually. It is better to write too many notes than none at all.

PERSONNEL JOURNAL

Vol. 39, June, 1960

*In defense of job evaluation: a management tool. F. G. McClintock.—p. 58.

Defending Job Evaluation. This article is a rebuttal, prompted by a previous article in criticism of job evaluation. To set the stage, the first article is summarized. Following are definitions of job evaluation, wage and/or salary administration, and labor expense control (three interrelated concepts). In presenting the job evaluation concept, the author points out that the public climate in business demands some systematic approach which will minimize personal bias, minimize errors in judgment, and take into account historical relationships. The orderly process of job evaluation provides a relatively objective means to fit new job classifications or recombination of old job classifications into the long-time rate structure. Job evaluation is not an end in itself but a means to supplement the wage administration process. When job evaluation procedures are wisely chosen and wage administration techniques are properly prepared, management is provided with a tangible set of data on which rational judgments affecting the conduct of business can be based. In all of these areas, one is dealing with human values and human judgments. Since a purely scientific approach is impossible, it is imperative that judgment be kept well within the limits of rationalism if we are to add stability to our economic structure.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Remember: Nothing . . . yes NOTHING . . . cleans so easily, holds heat or cold, resists wear as long, has such rich beauty as VITRIFIED CHINA. And . . . it's always in good taste!
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IMPORTANT . . . MAIL YOUR APPLICATION PROMPTLY

Application for Housing Accommodations

THE AMERICAN DIETETIC ASSOCIATION

Cleveland, Ohio • October 18-21, 1960

For your convenience in making hotel reservations for the coming meeting of THE AMERICAN DIETETIC ASSOCIATION, hotels and motels, with rates, are listed below. Use the form at the bottom of this page, indicating your first, second and third choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. All reservations must be cleared through the Housing Bureau. ALL REQUESTS FOR RESERVATIONS MUST GIVE DEFINITE DATE AND HOUR OF ARRIVAL AS WELL AS DEFINITE DATE AND APPROXIMATE HOUR OF DEPARTURE, ALSO NAMES AND ADDRESSES OF ALL PERSONS WHO WILL OCCUPY ACCOMMODATIONS REQUESTED *MUST* BE INCLUDED.

Hotel	Single Bed	Double Bed	Twin-Bedded	Suites
Auditorium	$6.00- 9.50	$7.75-11.50	$11.00-14.00	$28.00-38.00
Manger	6.00-10.00	9.00-11.00	10.00-14.50	22.00-32.50 2 rms.
		Studios	14.50-30.00	39.00-60.00 3 rms.
Pick-Carter	6.50-10.75	9.50-14.00	11.00-16.00	27.50-37.50 2 rms.
				41.50-51.25 3 rms.
Sheraton-Cleveland*	7.00-11.00	10.50-14.50	13.50-20.50	26.00-51.50 2 rms.
				47.00-70.00 3 rms.
Statler-Hilton	6.50-12.50	13.00-16.00	14.00-28.00	28.00-39.00 2 rms.
		Studios	16.00-30.00	51.00 3 rms.
Motel				
Colonial House Motel	7.50	9.00	10.00	
Colony Motor Hotel	4.00	6.00		
Lake Erie Motel	8.00	11.00-14.00	14.00	

In the event that the hotel room rate structure is changed prior to the above convention these rates will be changed accordingly.
*Headquarters hotel

ALL RESERVATIONS MUST BE RECEIVED PRIOR TO SEPTEMBER 15, 1960

Hotel Reservation Bureau, A.D.A.
Cleveland Convention Bureau
511 Terminal Tower
Cleveland 13, Ohio

Please reserve the following accommodations for: THE AMERICAN DIETETIC ASSOCIATION Convention in Cleveland, October 18-21, 1960:

Single Room_____ Double-Bedded Room_____ Twin-Bedded Room_____

2 Room Suite_____ Other Type of Room_____

Rate: From $_____ to $_____

First Choice Hotel_____
Second Choice Hotel_____
Third Choice Hotel_____

Arriving at Hotel (date) _____ hour ____ A. M. ____ P. M. Leaving (date) _____ hour ____ A. M. ____ P. M.

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of *both* persons for *each* double room or twin-bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

_____

_____

_____

(Individual Requesting Reservations)

Name _____

Address _____

City and State _____

If the hotels of your choice are unable to accept your reservation the Housing Bureau will make as good a reservation as possible elsewhere provided all hotel rooms available have not already been assigned.

Annual Meeting

The American Dietetic Association
October 18-21, 1960
Cleveland

ANNUAL MEETING time is drawing near. We hope you haven't forgotten your date to meet us in Cleveland next month. We are completing plans to welcome you and are looking forward to seeing you there. We know you'll find these four days well spent.

As you wind up plans for your trip to Cleveland, we thought you might like to know a little of the history of our convention city. A look into the past of Ohio's largest city takes us back to the days of 1796 and beyond. In 1796, the site of the town was selected by a man named Moses Cleaveland. Prior to that time, this territory was the back yard of the Colony of Connecticut, having been obtained through a grant from Charles II of England.

The land was hotly disputed, portions of it being claimed by four other colonies. (Often an English king would bestow territory that his predecessors had already given away, thereby creating a grand state of confusion.) Confusion reigned until the thirteen states agreed to turn disputed lands over to the federal government.

Connecticut, required to waive part of her claim, reserved a tract which later became Northeastern Ohio and which was known as the Western Reserve. Not long afterwards, Connecticut devised a means of compensating her citizens who had suffered losses by fire or otherwise during the Revolution. This tract of land was offered for sale, and a group of citizens organized as the Connecticut Land Company bought the unsurveyed land at 40 cents an acre.

Moses Cleaveland was a shareholder and member of the board of directors of the Connecticut Land Company. He became superintendent of the surveying party which set forth in 1796 to lay out townships and survey lots suitable for sale. At the mouth of the Cuyahoga River, he selected the site of the town which was to be named for him.

You may wonder how "Cleaveland" became "Cleveland." The maker of the first map of this area apparently was a poor speller, or at least an unobservant one; he inadvertently left the "a" out of Cleaveland.

Cleveland today is quite different from the patch of land surveyed by Moses Cleaveland in 1796. It is now a city of more than a million people, an industrial giant, and a metropolis offering much in the way of cultural and educational attractions.

A word about our convention city from the standpoint of the convention visitor—you. We are told that half of the population of the U. S. is within a 500-mi. radius and no more than an overnight train ride from the city. Transportation facilities are excellent, and we hope that you'll put them to good use. Hop on a train, plane, bus, magic carpet, or whatever you prefer and join us in October.

You will be glad to know of Cleveland's compact layout. The shopping area, major hotels, Lake Erie, and the Public Auditorium are all within a few minute's walking distance. A great boon for tired feet!

The Public Auditorium is a spot with which you will inevitably become familiar. It is included with a group of public buildings around a 17-acre garden spot called "The Mall." The Mall overlooks Lake Erie and extends into the business district. Other buildings in this group are the Federal Building, the Public Library, the Board of Education Building, City Hall, Cuyahoga County Court House, and the lakefront Municipal Stadium.

Cleveland ranks high among the nation's cultural and educational centers. It is the home of Western Reserve University. One of Ohio's oldest educational institutions, Western Reserve, is made up of various colleges. A well-known engineering school, Case Institute of Technology, adjoins the Western Reserve campus.

Last month we mentioned some of Cleveland's many points of interest that you might enjoy visiting when you come to our 43rd Annual Meeting. Here are more spots that you might like to include in your sight-seeing.

Terminal Tower—The tallest building in the U. S., outside of New York City, this is a "must" for the visitor to Cleveland. The observation floor, 42 stories above the ground, offers a panoramic view of the entire city and several miles of Lake Erie. It has been said that from this vantage point, "you can see more in a glance than you can in a week of motoring."

Originally intended to be one of a group of skyscrapers, Terminal Tower rises above Cleveland in lone splendor, its would-be neighbors having succumbed to the bursting of an underwriting financial bubble. From Terminal Tower you can see the *Flats*, the ½-mi. wide lowlands which cut through the center of the city to form a setting for the winding Cuyahoga River. On the banks of the river can be seen the iron and steel mills, oil refineries, lumber yards, and manufacturing plants that make Cleveland the industrial city it is.

Directly below Terminal Tower lies the *Public Square*, a relic of the original planning of the city. The square is laid out in what was intended to be the "capitol" of the Western Reserve. It consisted of a little more than four acres of land and cost the land company $1.76. In 1946, it was valued at $4,320,000!

The Cleveland Museum of Art is an impressive and beautiful building with masterpieces from all over the world. Included in its treasures are the nine objects from the famous tenth century Guelph Treasure. Luncheon and afternoon tea are served daily.

Severance Hall—This is the home of the Cleveland Symphony Orchestra. Concerts may be heard on Thursday and Saturday evenings.

Nela Park—The research center of the Lamp Division of General Electric Company. It is the home of the GE Lighting Institute where a special point of interest is Horizon House, a home of the future.

Thompson Products Auto Album and Aviation Museum — This museum houses more than a hundred antique automobiles, restored and in running order. If antique autos don't hold much attraction for you, you might enjoy seeing "Main Street," where a typical street scene of the "Gay Nineties"—complete with saloon, blacksmith shop, grocery store, and scenes of that era—constructed at about seven-eighths actual size.

A Premiere

OUR BRAND new slide film, *"Take A Good Look,"* will be presented for the very first time at the Annual Banquet. Filmed in color and with an accompanying sound track, *"Take A Good Look"* is an authentic documentation of the wide variety of career possibilities open to the individual with education in dietetics. Pictures taken in actual on-the-job situations show the opportunities available in administrative work, college and university food service, hospital dietetics, community nutrition, college and university teaching, research, and commercial dietetics —everything from test tubes to glamor.

The film has a running time of approximately 16 min. and has been cleared for use on television. Arrangements for sale and rental are now being completed and will be announced at the banquet.

Program Outline—43rd Annual Meeting

THE AMERICAN DIETETIC ASSOCIATION

Cleveland—October 18-21, 1960

All meetings and activities, Oct. 18 through 20, unless otherwise specified, will be at the Cleveland Public Auditorium.

Saturday, October 15

9:00 a.m.–12 noon—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel (limited to internship programs)

1:30–4:30 p.m.—CONFERENCE OF DIRECTORS AND STAFFS OF APPROVED DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel (limited to internship programs)

Sunday, October 16

1:30–4:30 p.m.—CONFERENCE OF FACULTIES OF COLLEGE AND UNIVERSITY HOME ECONOMICS DEPARTMENTS AND APPROVED DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel

2:00–8:00 p.m. — REGISTRATION, Sheraton-Cleveland Hotel

7:00–8:30 p.m.—ORIENTATION OF DELEGATES TO THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

Monday, October 17

7:30–8:20 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

8:00–8:20 a.m. — REGISTRATION, Sheraton-Cleveland Hotel (delegates only)

8:30 a.m.–12:15 p.m.—MEETING OF THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel (Members of the Association are encouraged to audit this meeting.)

8:30 a.m.–8:00 p.m. — REGISTRATION, Sheraton-Cleveland Hotel

12:30–1:30 p.m.—LUNCHEON, Sheraton-Cleveland Hotel (members of the House of Delegates and Alternate Delegates only)

1:45–5:00 p.m.—MEETING OF THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel (Members of the Association are encouraged to audit this meeting.)

8:00 p.m.–10:00 p.m.—PANEL: REVISED SECTION OBJECTIVES

Workshops—Meet your fellow A.D.A. members, Sheraton-Cleveland Hotel

Tuesday, October 18

7:30–8:00 a.m.—REGISTRATION OF DELEGATES TO THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

8:00–9:45 a.m.—MEETING OF THE HOUSE OF DELEGATES, Sheraton-Cleveland Hotel

8:30 a.m.–4:00 p.m.—REGISTRATION, Cleveland Public Auditorium

10:30–11:30 a.m.—OPENING SESSION, Cleveland Public Auditorium

11:00 a.m.–9:00 p.m.—VISIT EXHIBITS

11:40 a.m.–12:40 p.m.—MEMBERS FROM ABROAD REPORT

11:45 a.m.–12:30 p.m.—EXECUTIVE DEVELOPMENT AND YOU

11:45 a.m.–1:15 p.m.—SHARE AND COMPARE

A.D.A. career film, "View from the Mountain"
Parliamentary Procedure
Developing and Writing Diet Manuals
Cost Controls

12:45–1:30 p.m.—COMBATING FOOD MISINFORMATION

1:45–3:00 p.m.—ATHEROSCLEROSIS: Dietary Aspects of Today

2:00–3:10 p.m.—MANAGERIAL RESPONSIBILITIES

3:15–4:30 p.m.—BUSINESS MEETING OF MEMBERS OF THE AMERICAN DIETETIC ASSOCIATION—Association Highlights of 1959-1960

6:30–8:00 p.m.—WELCOMING BUFFET FOR MEMBERS AND EXHIBITORS

6:30–9:00 p.m.—VISIT EXHIBITS

Wednesday, October 19

7:15–9:30 a.m.—BREAKFAST AND MEETING FOR PRESENT AND INCOMING EXECUTIVE BOARDS OF STATE DIETETIC ASSOCIATIONS, Sheraton-Cleveland Hotel

8:30 a.m.–4:00 p.m.—REGISTRATION

8:00–9:30 a.m.—SHARE AND COMPARE, Cleveland Public Auditorium and Sheraton-Cleveland Hotel

Meeting for Dietary Consultants to Small Hospitals and Similar Facilities
Teaching Students in Hospital Administration
A.D.A. career film, "View from the Mountain"

9:00 a.m.–5:30 p.m.—VISIT EXHIBITS

9:45–11:15 a.m.—HOW DO OUR DEPARTMENTS OF DIETETICS MEASURE UP?

10:15–11:30 a.m.—DIET THERAPY: Osteoporosis and Calcium Utilization

11:30 a.m.–12:45 p.m.—EFFECTIVE COMMUNICATION

12 noon–1:20 p.m.—TODAY'S CHALLENGE — AN AGING POPULATION

1:30–2:45 p.m.—THE COMMUNITY'S RESPONSIBILITY FOR FEEDING OUR SENIOR CITIZENS

1:45–2:45 p.m.—PRESENT CONCEPTS IN NURSING EDUCATION

2:20–3:35 p.m.—FOOD TECHNOLOGY ADVANCES: Problems in Processing Foods

2:30–3:45 p.m. — ENERGY EXPENDITURE IN WEIGHT REDUCTION

4:00–4:50 p.m.—ENERGY EXPENDITURE IN CARDIAC IMPAIRMENT

3:45–5:00 p.m.—MENTAL HEALTH PROGRAMS TODAY

3:45–5:00 p.m.—TRAINING THE FOOD SERVICE SUPERVISOR

5:00–6:00 p.m.—THE A.D.A. EXECUTIVE BOARD AT HOME TO DIETETIC INTERNS, Sheraton-Cleveland Hotel

6:00–8:00 p.m.—ALUMNAE DINNERS, COLLEGES, UNIVERSITIES, AND MILITARY SERVICES, Sheraton-Cleveland Hotel

8:30–9:45 p.m. — LATEST ADVANCES IN NUTRITION, Sheraton-Cleveland Hotel

9:45–10:45 p.m.—THE A.D.A. EXECUTIVE BOARD WELCOMES OUR VISITORS FROM OTHER LANDS, Sheraton-Cleveland Hotel

Thursday, October 20

7:15–8:15 a.m.—ALUMNAE BREAKFASTS, DIETETIC INTERNSHIPS, Sheraton-Cleveland Hotel

8:15–9:45 a.m.—DIETARY METHODOLOGY

8:30 a.m.–4:00 p.m.—REGISTRATION

8:30-10:00 a.m.—MENTAL HEALTH, Sheraton-Cleveland Hotel

8:30-10:00 a.m.—SHARE AND COMPARE, Cleveland Public Auditorium and Sheraton-Cleveland Hotel

Training the Food Service Supervisor
How We Can Best Use Visual Aids
Nursing Education

9:00 a.m.–5:30 p.m.—VISIT EXHIBITS

9:15–10:45 a.m.—RESEARCH IN ATHEROSCLEROSIS AND OBESITY

9:30–10:45 a.m.—STANDARDS OF WORK PERFORMANCE

11:15 a.m.–12:45 p.m.—WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

1:00–2:15 p.m.—IMPROVED LABOR RELATIONS

1:40–3:00 p.m.—CHANGING FOOD HABITS

2:30–3:45 p.m.—CENTRALIZED VS. DECENTRALIZED SERVICE IN THE DEPARTMENT OF DIETETICS

2:30–4:00 p.m.—THERAPEUTIC RESEARCH

3:30–5:00 p.m.—SCHOOL FOOD SERVICE PROGRAMS

3:30–5:00 p.m.—DISASTER FEEDING AND CIVIL DEFENSE PLANNING

4:00–5:00 p.m.—ADMINISTRATION

7:30–10:00 p.m.—ANNUAL BANQUET, Sheraton-Cleveland Hotel

Friday, October 21

All meetings in the Sheraton-Cleveland Hotel.

7:15–8:15 a.m.—ALUMNAE BREAKFASTS, DIETETIC INTERNSHIPS

8:30–10:00 a.m.—SHARE AND COMPARE
Disaster Feeding and Civil Defense
Teaching Quantity Food Preparation
The Shared Dietitian

9:00 a.m.–12 noon—REGISTRATION

9:00–10:00 a.m.—INTERDEPARTMENTAL AND INTERPERSONAL RELATIONS

10:15 a.m.–12 noon—LATEST IN EQUIPMENT AND ADMINISTRATION RESEARCH

10:15 a.m.–12 noon—NEW DEVELOPMENTS IN OBESITY

12:15–2:00 p.m.—HISTORY OF NUTRITION AND DIETETICS LUNCHEON

2:15–3:30 p.m.—STAFF DEVELOPMENT

2:15–3:30 p.m.—RECENT FINDINGS IN DIET AND DISEASE

The tentative program, including names of speakers and their topics, will appear in the October issue of the *Journal.*

COMMERCIAL EXHIBITORS—43rd ANNUAL MEETING
THE AMERICAN DIETETIC ASSOCIATION
CLEVELAND PUBLIC AUDITORIUM, OCTOBER 18, 19 and 20, 1960

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A. R. Albert Corporation
Allen Foods, Inc.
Amcoin Corp.
American Dry Milk Institute, Inc.
American Gas Association
American Institute of Baking
American Sheep Producers Council, Inc.
Armour and Company
Automatic Food Shaping Co., Inc.

The Baker Laboratories, Inc.
Baker Perkins, Inc.
Bally Case and Cooler, Inc.
Beech-Nut Baby Foods
Best Foods Div., Corn Products Company
Best Products Company
G. S. Blakeslee & Co.
S. Blickman, Inc.
Blue Water Seafoods Co.
Boonton Molding Co.
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Brookpark, Inc.
Bucks County Enterprises, Inc.
Buffalo China Inc.
Bunn Capitol Company

Calgon Co., Div. of Hagen Chemicals & Controls, Inc.
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Clark Products, Inc.
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DCA Food Industries, Inc.
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Diamond Crystal Salt Co.
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Dri-Heat Food System, Inc.
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E. I. du Pont de Nemours & Co., Inc.
Durkee Famous Foods

Economics Laboratory, Inc.
Encyclopaedia Britannica
E. P. Co., Inc.
Evaporated Milk Association

Fearn Foods Inc.
A. J. Fish Oven Co.
Florida Citrus Commission
Food Machinery and Chemical Corp.
Foster Refrigerator Corp.
E. Fougera and Company, Inc.
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The Frito Company

General Foods Corp.
General Mills, Inc.
Gerber Products Co.
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Klenzade Products, Inc.
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Kraft Foods

Legion Utensils Co., Inc.
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Lowerator Div., American Machine & Foundry Company

Market Forge Company
Mead Johnson & Company
Mealpack Corporation
Meals-on-Wheels—Crimsco, Inc.
Mercury Mfg. Co.
Metropolitan Life Insurance Company
Metropolitan Wire Goods Corp.
Middleby-Marshall Oven Company
Louis Milani Foods, Inc.
L. J. Minor Company
Mobile Kitchens, Inc.
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National Biscuit Company
National Dairy Council
National Live Stock and Meat Board
The Nestlé Company, Inc.
The H. R. Nicholson Company
Nutting Truck and Caster Company

Ocean Spray Cranberries, Inc.
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Pasco Packing Company
Pet Milk Company
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Oatmeal is an ideal food for hospitalized patients, providing more protein than any other whole-grain cereal. Oatmeal with milk contributes substantially to the dietary allowances recommended for thiamine, riboflavin, niacin and iron. Rich in phosphorus, low in sodium, it is unsurpassed in dietary usefulness.

Oatmeal is easy to prepare . . . and economical to serve. It's high in nourishment . . . low in calories, even with milk.

Two ounces of Quaker Oats provides the following percentages of M.D.R.: thiamine (Vitamin B_1) 33%, phosphorus 33%, and iron 22%. One ounce provides 110 calories, and 16.7% protein, 6.9% fat, 62.4% carbohydrates, and 1.5% of roughage (crude fiber).

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BIOGRAPHICAL SKETCHES FROM THE HISTORY OF NUTRITION

Frank Lidgett McDougall—October 4, 1884–February 15, 1958

One of the sources of hope in this troubled world is the work of the Food and Agriculture Organization of the United Nations (FAO). It is concerned with a basic need of people—the improvement of food, agriculture, and economy. This work, carried on by international teams, excites hope. But, who originated such an idea? To a large extent, the credit goes to Frank L. McDougall, practical farmer, administrator, and man of vision with ability to pen the memoranda and coin the phrases which would catch the imagination of world leaders.

Frank Lidgett McDougall, third son of Sir John and Ellen (Lidgett) McDougall, was born in London on October 4, 1884. He was educated at Blackheath School, London, and in Germany. At the age of twenty-two, he became a farmer in Renmark, South Australia. In 1923, he was appointed Economic Adviser to the Australian Government in England and held this post until 1945, when he became one of the first three persons on the staff of the newly-formed Food and Agriculture Organization of the United Nations. He was Special Adviser and Counsellor to the Director General until 1956, and then Adviser until his death.

Such is the bare outline of the life of a man of great faith in human nature and the willingness of men, the world over, to work for the good of all. The years between were filled with work on the international level. He was representative on the Permanent Committee of the International Institute of Agriculture, Rome, 1929-40; second delegate for Australia at the League of Nations Assembly, 1929-39; a member of the Mixed Committee on Nutrition, League of Nations, 1935-37; and a member of the Economics Committee, League of Nations, 1935-45.

In the summer of 1935, McDougall prepared a brief on *The Agricultural and the Health Problems* of the world, showing the interrelationships of agriculture, financial stability, and health. In September of that year, Stanley Bruce of Australia (to whom McDougall was adviser) delivered a great speech to the Assembly of the League of Nations in Geneva, Switzerland, in which he used McDougall's idea and introduced the famous phrase "to marry health and agriculture." The League died, World War II came, but the work on international food problems continued.

McDougall came to the U.S. in 1941-42 as the Australian representative on international wheat agreements. As part of those discussions, McDougall drafted another *Memorandum on a United Nations Program for Freedom from Want of Food* which outlined proposals which would make the marriage of health and agriculture a reality. Mrs. Eleanor Roosevelt saw this report, talked with McDougall, and then called the memorandum to President Roosevelt's attention. McDougall was invited to the White House and suggested to the President that food, the dominant need of all people, would be a good starting point for any United Nations work.

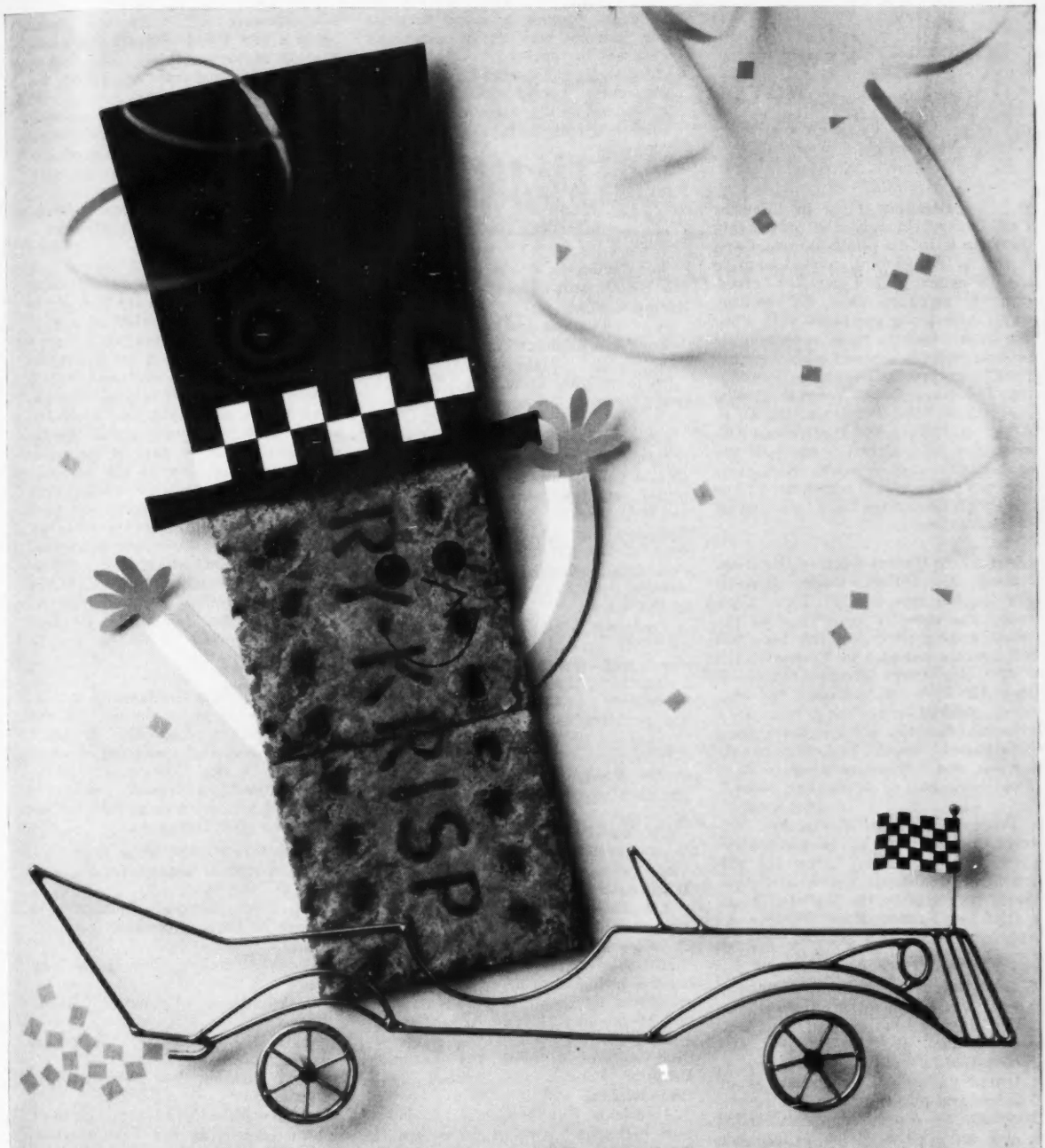
In May 1943, President Roosevelt called the Hot Springs Conference on Food and Agriculture which was attended by representatives of forty-four governments. Following this historic meeting, an Interim Commission was organized to work out plans for a permanent organization. McDougall was a member of this Commission and was active in drawing up the constitution of FAO which was signed by forty-five member countries at the Quebec Conference in October 1945. FAO was born; Sir John Orr (later Lord Boyd-Orr) was elected the first Director-General, and Frank McDougall, Special Adviser.

Those of us who had the privilege of meeting Mr. McDougall in Rome in 1956 while attending the 2nd International Congress on Dietetics remember him as a white-haired man of medium height, genial, smiling, and alert, and happy over *The McDougall Memoranda* which FAO had just published in his honor.

In February 1958, Mr. McDougall became ill and an operation for acute appendicitis was performed. His sister, Marjorie, and his daughter, Betty, were with him when he died February 15, 1958. He was buried next to Shelley's tomb in the Protestant Cemetery in Rome.

FAO has established the McDougall Memorial Lecture in his honor. The first lecture was delivered by Dr. Arnold Toynbee on November 2, 1959 in Rome at a Plenary Session of the Tenth Conference of FAO.

REFERENCES: The McDougall Memoranda. Rome: FAO, 1956; Toynbee, A.: Population and Food Supply; McDougall Memorial Lecture. Rome, FAO, 1959; Hambidge, G.: The Story of FAO. N. Y.: D. Van Nostrand Co., Inc., 1955.—
Contributed by E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa.



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Army Dietitian Flies in "Powder Puff Derby." In July, the only Army dietitian to hold a pilot's license, Capt. Mary A. Armstrong, participated in the "Powder Puff Derby," a cross-country airplane race for women. Capt. Armstrong competed with some 160 other women, ages seventeen to seventy, who flew about eighty planes from Torrance, California to Wilmington, Delaware. Capt. Armstrong, who is Chief of Food Service at the U. S. Army Hospital, Ft. Huachuca, Arizona, flew solo, although many of the contestants had co-pilots. She owns her own plane and is a member of the "99's" (International Organization of Women Pilots).

Air Force Honors Reserve Dietitian. Isabelle G. Dubar, Chief, Dietetic Service, VA Hospital, Ft. Lyon, Colorado, was recently recognized as the "Outstanding Officer of the Year" at the awards banquet in Pueblo of the 9767th Air Force Reserve Squadron, 10th Air Force. Miss Dubar, the only woman officer in the Squadron, as a reserve officer is an instructor in a detachment which includes twenty airmen and officers ranging in rank from sergeant to lieutenant colonel.

Frozen Foods for September. Attractive menus can be planned for the month of September, using the following frozen foods which are especially suggested by the National Association of Frozen Food Packers as appropriate for this season:

Frozen Fruits and Desserts

CONCENTRATED JUICES AND JUICE COMBINATIONS—On warm, Indian-summer days, frozen concentrated lemonade can provide a quick and easy cool beverage. Use frozen contrated juices and combinations of juices and purées in punches.

RASPBERRIES—Purée the raspberries and serve as a Melba sauce over frozen peaches and ice cream. Raspberries also serve as delightful garnishes for fruit salads.

RHUBARB—Serve as a meat garnish or baked with spice. Use to make a tart tapioca pudding dessert.

DESSERTS—Several new frozen cakes seem to keep fresh tasting "forever," thus being available on short-notice without using costly labor. Frozen fruit and cream and custard pies are also in demand when autumn comes.

Frozen Vegetables

BEANS, GREEN—Add to stews for color and flavor, or use them for salads with bacon dressing.

BRUSSELS SPROUTS—These little green cabbages provide a happy surprise for patrons who enjoy something different in vegetables.

CARROTS—May be served may ways: parsleyed, glazed, joined with a green vegetable such as peas, or combined with turnips or onions.

The following foods, according to the USDA, will be in plentiful supply during September:

Broilers and fryers
Late summer vegetables
Melons
Peanut butter
Turkeys

Cuernavaca Conference. Following the International Congress on Nutrition, a small, invitational, inter-disciplinary conference will meet in Cuernavaca, Mexico, September 9 to 12, inclusive. The conference will explore some of the psychologic and cultural difficulties which block efforts to change food habits in various areas of the world.

Professor Otto Klineberg of Colombia will preside at the conference, which will include representatives of a number of the United Nations specialized agencies concerned with the problem of improving nutrition throughout the world. A report of the deliberations will later be published by the Food and Agriculture Organization of the United Nations.

Coming Events. *American School Food Service Association,* 14th annual convention, October 2 to 6—Washington, D. C.

The American Dietetic Association, 43rd Annual Meeting, October 18 to 21—Cleveland

Institute on Nutritional and Metabolic Considerations in Disease, co-sponsored by Committee on Nutrition and Metabolism, *Philadelphia County Medical Society; American College of Gastroenterology; and the National Vitamin Foundation,* October 29—Philadelphia.

American Public Health Association, 88th annual meeting, October 31 to November 4—San Francisco

Third Annual Institute on "Newer Concepts of Growth and Development: Implications in Child Health," co-sponsored by the Schools of Public Health, *Universities of Michigan and Minnesota,* November 28 through December 2—Minneapolis

Therapeutic Nutrition Seminar, *The University of Texas Southwestern Medical School,* December 2 and 3—Dallas

Third International Congress of Dietetics, July 10 to 14, 1961—London, England.

Booklet on Nursing Homes. The problems facing the nation—and the individual—in relation to providing adequate care for the aged are pointed up in a new Public Affairs Pamphlet, *Private Nursing Homes.* The booklet states: "By any measuring rod, the nation's 25,000 nursing homes with 250,000 beds do not meet our needs. It is estimated that 323,000 additional beds are needed. . . What is needed is an intermediate kind of service, midway between the unskilled care of an attentive but untrained housewife and the expensive, complex services of a general hospital."

The pamphlet contains general advice for a family which is searching for just such nursing care and points out that the first essential of a good nursing home is to "provide a happy environment, attention to individual needs, and personal courtesy. It will understand the need to keep the patient active, physically and mentally, and to keep his morale high." Special attention should be paid to the qualifications and ability of the administrator, to the quality of medical care available, to food, to recreation services, and, above all, to the quantity and quality of the nursing service.

This pamphlet, which is No. 298 in the series published by the Public Affairs Committee, Inc., may be ordered from the Committee, 22 East 38th Street, New York 16, for 25 cents a copy.

Dietetic Interns Graduate. A graduating class of eight dietetic interns were honored in ceremonies on July 7 at *Eastman Kodak Company,* Rochester, New York: Edward P. Curtis, Vice-President, addressed the graduates and presented them with certificates. The class included:

G. Diane Bowerstock, Lima, Ohio
Jane A. Brennan, Dallstown, Pennsylvania
Rita C. Cook, Munhall, Pennsylvania
Barbara Reeder, Emmaus, Pennsylvania
Elizabeth A. Snayd, Glen Head, New York
Kay Stammers, Cranston, Rhode Island
Marilyn J. Trumpeter, Rochester, Pennsylvania
Nancy Wilkinson, New Bedford, Massachusetts

The September graduating class of dietetic interns at the *Veterans Administration Hospital,* Bronx, New York, numbers six:

Camille R. Cali, Hunter College, New York, New York
Janis L. Carlson, Rochester Institute of Technology, Rochester, New York
Kathleen E. Kerls, Framingham (Mass.) State Teachers College
Betty J. McVey, Iowa State University, Ames
Kathryn Nethercott, Immaculata (Penn.) College
Annese Thomas, Texas Technological College, Lubbock

Using Monosodium Glutamate. New research reported from the Western Utilization Research and Development

NOW AT LAST HERE IS THE SOLUTION TO YOUR EGG PROBLEM

Nobody dreamed there *was* an egg problem until Economics Laboratory, in a continuing program of research achievement, revealed protein-type soils as the real villains in dishwashing . . . because they produce disabling foam which reduces wash pressure.

From this exclusive discovery it was then only a corollary for Economics Laboratory to develop Score* and Event*—the *only* new and different detergents that can *double* the efficiency of your present dishmachine operation by reducing foam. *PATENTS PENDING

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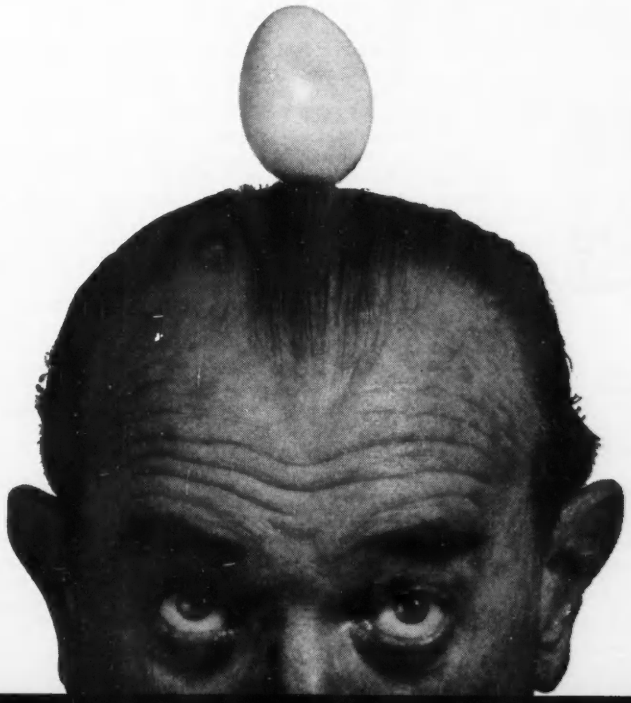

OUTER SPACE POT PROBLEM SOLVED!

Orsin W. F. X. Peabody, owner and general manager of San Francisco's Outer Space Restaurant says:

"I'm a thumb twiddler at heart and my thumbs have really been in orbit since I started using this new Pot N Pan cleaner. I own this place, but I insist on cleaning the pots and pans myself . . . because our motto is 'A good meal starts with a clean pot.' Well, this new Pot N Pan cleaner really cleans pots and pans faster—easier; penetrates even the heaviest soil deposits. No more trouble in this department and more thumb twiddling time for me. Why don't you ask the Calgon Company to send you a box? Don't let 'em charge you for it. I got my first package free."

Mr. Peabody might be mythical. But the free offer's for real. You have nothing to lose and a lot to gain by sending the coupon for a free package.

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of the USDA in Albany, California, sheds more light on the uses and limitations of monosodium glutamate as a flavor adjunct.

The amount of glutamate naturally present in a food was found to affect the flavoring value of added glutamate. Chicken broth and pork sausage, for example, are low in natural glutamate and added glutamate was readily detected in these foods. Peas, paste made from poultry livers, and tomatoes, on the other hand, are relatively high in glutamate content and in such foods, the addition of the flavoring adjunct had less effect. Thus, the natural content of glutamate can serve as a guide to amounts to be added.

Normal levels of thickening agent, fat content, and seasonings do not greatly influence ease of detection. Although added glutamate is most readily detected in chicken broth, the addition of thickening, fat, and seasonings interfered only slightly with detection. The same conclusion was reached in studies with other foods.

The rate of development of off flavor was unaffected by glutamate added to fried chicken, turkey à la king, pork sausage, and other foods frozen and held at 10° and 20°F., nor did it mask the off flavor.

In several canned foods, glutamate was retained without loss, and its flavoring effect did not differ when added before or after canning. The advantage of adding it before canning lies in uniform distribution of the glutamate, especially in canned foods with several ingredients.

Preference tests showed that foods with added glutamate were generally preferred to those without it, and in no case was a sample of food with added glutamate considered inferior.

Egg Consumption. Half of the eggs used in the home are served at breakfast, according to a recent USDA survey of 2450 homemakers. Most of these women consider eggs a breakfast food, yet 40 per cent of the population do not eat eggs regularly for breakfast. They are considered the most healthful of solid foods commonly served for breakfast and are usually thought of when substantial or medium-sized breakfasts are involved. However, many of the women felt that office workers, homemakers, and others not engaged in heavy physical labor do not need a substantial breakfast and, in addition, that people concerned with overweight should eat a "light" breakfast. To nearly all of the homemakers interviewed, the key difference between large and small breakfasts was whether eggs were included and how many. In their opinions, a "large" or "substantial" breakfast usually includes two eggs. Ninety-four per cent considered eggs a part of a "large" breakfast, while only 22 per cent thought of them in terms of a "small" breakfast, and then almost always only one egg.

The survey indicated that men are less likely to eat breakfast at home than women—perhaps because of the "morning rush" to work, and that persons between the ages of sixteen and fifty years are more likely to eat breakfast away from home. However, of those who do eat breakfast at home, men and boys are more likely to eat eggs than women and girls.

Not quite half reported they "sometimes" have eggs as the entrée at noon and half said they served them "sometimes" at evening meals.

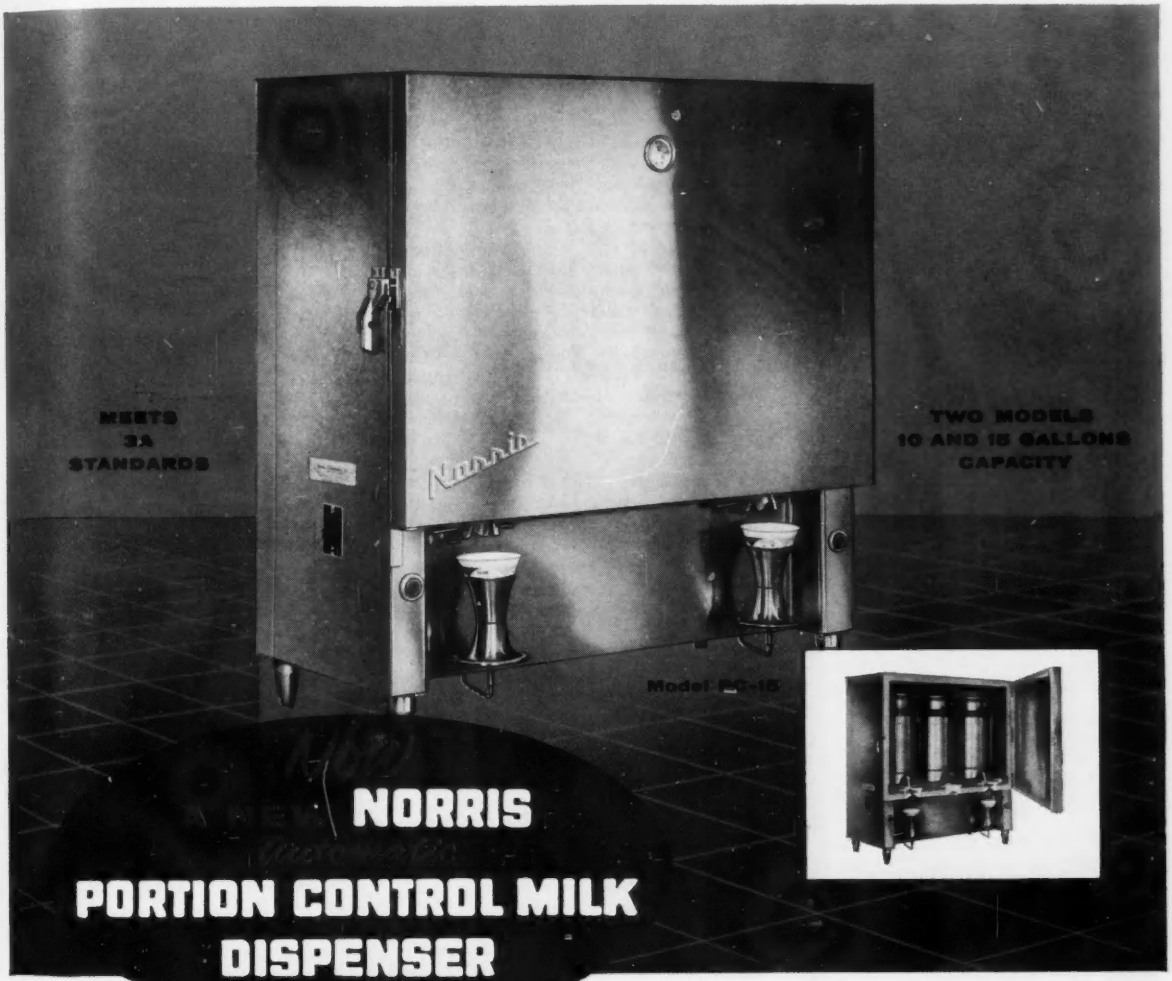
The findings of this survey have been published under the title "Homemakers' Use of and Opinions about Eggs" (Marketing Research Report No. 405), which may be requested from the USDA's Office of Information, Washington 25, D.C.

USDA Booklet. A revised edition of the USDA booklet "Home Storage of Vegetables and Fruits" (Farmers' Bulletin No. 1939) has been issued by the Agricultural Marketing Service. Facilities for home storage without refrigeration are discussed, and information is given on temperature and moisture requirements, as well as crops that are suitable for storage. Special sections on storage of fifteen vegetables and four fruits are included: dry beans and peas, late cabbage, late celery, endive, onions, parsnips, salsify, horseradish, peppers, potatoes, pumpkins, squashes, miscellaneous root crops, sweet potatoes, tomatoes, apples, citrus fruits, grapes, and pears.

Single copies of this booklet are available on request from the USDA's Office of Information, Washington 25, D.C.

Do Working Wives Feed Their Families Well? A wife's employment outside the home seems to have little effect on the nutritive value of her family's diet, although it does affect food costs, a USDA survey shows. On the average, families with employed homemakers spend about 56 cents more per person on weekly food supplies than families with similar incomes in which the wife is not working. Families with working wives are more likely to buy more meals out and to spend more for them. They buy more meat, poultry, and fish per person than other families and spend more per pound, indicating that the employed homemakers tend to select more expensive types or cuts. This group also purchases more baked goods and generally use more fats, oils, and beverage, but less milk per person, largely because these families have fewer children under sixteen years old.

Contrariwise, however, non-working wives buy more flour mixes, and they use as many frozen vegetables and fruits, juices, soups, jams, and jellies as the employed homemakers. Although diets for both groups of households are generally similar in nutritional value, more households with employed homemakers tend to fall below the recommended allowances for



An automatic dispenser that will deliver an exact, predetermined amount of milk at the push of a button! That's what Norris offers in this new automatic Portion Control milk dispenser. Actuated by small platform scales, this newest Norris dispenser will automatically dispense any given quantity of milk up to one full quart. It's simple, fool-proof and accurate. Speed your service and insure full portions of milk in any amount with the new Norris Portion Control dispenser.

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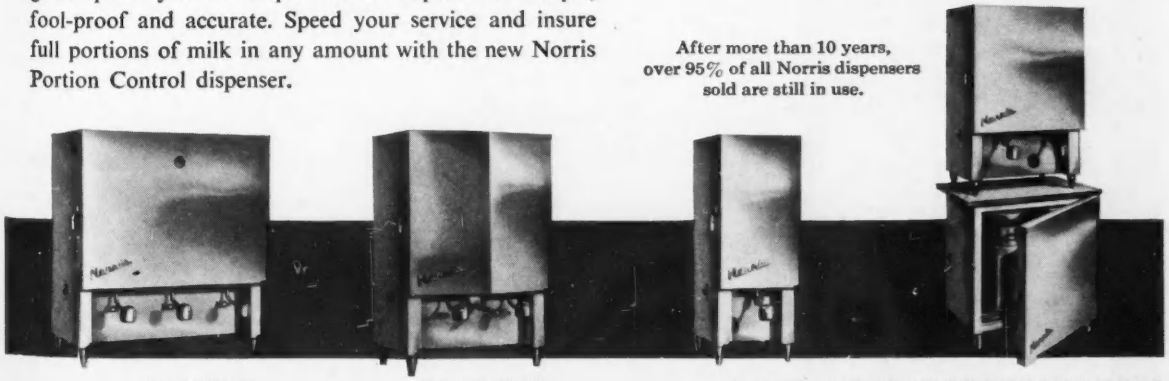
After more than 10 years, over 95% of all Norris dispensers sold are still in use.



N-15 MANHATTAN
Three 5-gallon cans. 39⅝" high, 37½" wide, 17⅞" deep. Manhattan series includes N-10, two 5-gallon cans, 27" wide and N-5, one 5-gallon can, 16" wide. Manhattan models include temperature indicators.

N-10 MANHATTAN
with creamer. Two 5-gallon cans of milk and a 3-quart cream can. 39⅝" high, 27" wide, 20⅜" deep. Creamer model available in Super series. All Norris dispensers have temperature controls.

N-5 SUPER
One 5-gallon can. 39⅝" high, 16" wide, 17⅞" deep. Super series includes N-15, three 5-gallon cans, 37½" wide and N-10, two 5-gallon cans, at right on stand, 27" wide.

N-10 SUPER ON REFRIGERATED STORAGE STAND
N-10 Super holds two 5-gallon cans. 39⅝" high, 27" wide, 17⅞" deep. N-10 Refrigerated Storage Stand holds two 5-gallon cans in reserve. 34¼" high, 30" wide, 24" deep. Adjustable legs. N-15 refrigerated stand, three 5-gallon cans, 39¾" wide.

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We think you'll be particularly interested in our diet cards and holiday items; we have furnished them with pride to your profession for over a quarter of a century.

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riboflavin and thiamine. Comparisons based on family income showed that for groups with incomes below $6000 annually, there are no consistent differences in dietary adequacy in relation to the homemaker's employment. In the higher income brackets, a somewhat smaller proportion of the working wives provide diets with the recommended amounts of calcium, thiamin, and riboflavin.

These data, and other breakdowns, are provided in the new USDA publication, *Food Consumption and Dietary Levels of Households as Related to Employment of Homemaker—by Region* (Household Food Consumption Survey 1955 Report No. 15). It may be ordered for 75 cents a copy from the Government Printing Office, Washington 25, D.C.

Green Bean Sticks. The newest frozen food developed by technologists at the Oregon Agricultural Experiment Station is frozen green bean sticks. They are expected to be especially useful in providing a market for green beans that are excellent in quality but too large or irregular in shape for customary canning or freezing. To make the sticks, green beans are precooked, chopped into small pieces, and pressed into molds and frozen. They are then cut stick-size, breaded, fried in deep fat and refrozen. The resulting product is ready to serve after heating for 10 to 15 min. at 400°F. Though the sticks are good eating "as is," ham or cheese may be added.

Another product developed by the Oregon Station is frozen green bean fritters—made by about the same process, except that batter is added before the mixture is dropped into deep fat for frying. They may be heated for serving as are the sticks.

Citrus Vinegars. Orange, tangerine, and grapefruit vinegars have been made at the Florida Citrus Experiment Station from frozen concentrates of the citrus juices. Formerly, commercial production has proved impractical because orange or other citrus juices do not contain enough natural sugar to yield a vinegar of at least 4 per cent acetic acid—the minimum requirement. However, with the frozen concentrates, a citrus juice of almost any desired concentration and thus adequate sugar content is easily obtained.

Citrus peel vinegar has also been made from the "press liquor" of the fruit peel, ground, tested, and pressed.

Frozen Ducks and Geese. Despite their high fat content, well packaged, ready-to-cook frozen ducklings and geese can be stored safely up to a year at 0°F. or lower. Food technologists at the USDA's Western Utilization Division, Agricultural Research Service, tested commercial packs of ready-to-cook ducklings and geese at temperatures ranging from −30°F. to 20°F. In general, the birds held their fresh quality nine to twelve months when stored at 0°F. or lower. The first noticeable flavor changes were in the cooked skin. In contrast, the first signs of off-flavor in chickens were in the raw meat. The difference may be attributed to the much greater fat content of ducklings and geese. There was practically no moisture loss when the ducklings and geese were wrapped in the commonly used, form-fitting plastic film.

Nonfat Dry Milk Sales. Between 1948 and 1950, sales of nonfat dry milk for home use increased more than fifteen-fold—from 2 million to 30 million lb. But, by 1958, this figure had leaped to 169 million lb. Despite this rapid rise, home use of nonfat dry milk in 1958 was at the rate of less than 1 lb. per capita compared with about 4 lb. used in other food products. Home use of nonfat dry milk has also been low compared with that of such other dairy products as butter, ice cream, and evaporated milk.

What Milk Needs. According to a study made by the Pennsylvania Agricultural Experiment Station, milk needs to be upgraded to become a social drink. Interviews with teenagers and young adults in one Pennsylvania city showed that they generally considered milk the beverage that contributes most to growth, strength, and vigor, but considered it only as appropriate to drink with the family, at meals, or at bedtime, not on social occasions. Soft drinks were felt to be more appropriate when teenagers get together, on dates, when eating out, or at parties. In fact, both teen-agers and adults unanimously thought milk to be out of place at parties.

If milk could gain "status," its consumption during the important period of stress of the teens could be increased. The Pennsylvania report recommends special attention be given to party use of milk, such as fancy milk shakes or "floats."

Seasonal Meat Preferences. Surveyors from the Georgia Experiment Station recently reported a difference in meat preferences in warm and cold seasons. In surveying the meat purchases of families in four cities, beef appeared to be the top favorite in cool weather and poultry for warm weather. Forty-four per cent preferred beef in cool seasons, compared with 34 per cent in warm weather; figures for poultry were 41 per cent for warm seasons, but only 14 per cent for cool weather. Pork was the choice for cool weather of 26 per cent of the families, but only 9 per cent for warm weather.

Choices for sea food, canned meats, and cold cuts varied only slightly with the seasons. However, these foods were on the preferred list of only 3 to 5 per cent of the homemakers interviewed.

In response to an inquiry concern-

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Peak performance is standard with V-line®
You can expect and will receive smoother and more efficient operation with proven lower operating costs. Controlled, ideal humidity will keep your food fresh longer. V-line® gives you the greatest storage shelf area available today. When pull-out accessories are used your storage space increases over 50%. In addition, V-line® gives you more cooling capacity plus 25% more insulation. This is why you are assured peak performance with V-line.®
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- **A steady diet of smoke and grease fumes**—spreads thru and clings to surfaces, creating serious maintenance, sanitation and decoration problems. But a PLEDGAIRE system keeps walls **and** ceiling clean, utilizing permanent, washable, easy-to-reach-and-remove filters.
- **A steady diet of offensive "mixed odors"**—instead of being drawn back and filtered to properly sized ducts, cooking odors often "filter" thru dining area and other rooms to stifle sales and appetites. With the PLEDGAIRE system, odors are literally trapped and removed before they can spread.

PLEDGAIRE, the modern standard for kitchen ventilation, will pay for itself on new construction or in remodelling with increased efficiency, safety and savings—a "diet" you **CAN** afford!

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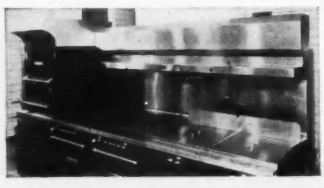

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ing quality, it was learned that most of the homemakers consider color, with leanness next, as indicative of quality.

Protein-Improved Skim Milk. Within the last five or six years, according to the Dairy Division, Agricultural Marketing Service, USDA, sales of fluid skim milk "built up" by adding nonfat milk solids have been increasing rapidly. The added nonfat ingredients give skim milk more "body," making it especially appetizing as a beverage. The skim milk fortified in this way is not always fully skimmed, but always contains less milk fat than whole milk. Vitamins are sometimes added, also.

Other products, too, are fortified in this way, including "cereal cream," buttermilk, sour cream, whole milk, flavored skim or whole milk, light and heavy cream, and yogurt. The skim milk product, however, is the most popular and is offered for sale in sixty-four of seventy-six areas studied, under a number of trade names. Such products were offered in greatest variety in the Midwest. In the Chicago area, as many as eight were found in stores. In several Iowa markets, sales amounted to 10 per cent of the total of all milk beverages sold.

News of State Associations

District of Columbia Dietetic Association. The Food Administration Section, working with the Adult Education Program of the D. C. Public Schools, has developed a "packaged" course for use in training food service supervisors. The course, titled "Work Simplification and Personnel Utilization Lesson Plan 'Pak-It,'" was used successfully in evening classes last year.

In conjunction with its 1959-60 career guidance program, the District of Columbia Association conducted an essay contest and awarded cash prizes and "a day in a hospital with the dietitian" to three students submitting the most outstanding essays.

The Community Nutrition Section last year conducted a series of six-week workshops for Girl Scouts to help them fulfill the requirements for the nutrition badge.

Maryland Dietetic Association. Last year, the Food Administration Section of the Maryland Association conducted two courses for food service supervisors in cooperation with the Adult Education Program of the Baltimore City Schools. Twenty-eight students completed the fifteen-week basic course, and five finished the twelve-week advanced course.

The Diet Therapy Section has had several interesting projects during 1959-60. A series of four lectures were given for nurses to bring them up to date on current nutrition and diet therapy practices. The lectures covered: diabetic diets and Exchange lists, sodium-restricted diets, fat-restricted and cholesterol-restricted diets, and diets for the aged. Two dietitians prepared and were directly responsible for each lecture. The presentation on fat- and cholesterol-restricted diets was specially requested by the Maryland Nurses Association, which has expressed its interest for a "repeat performance" this coming year.

The Diet Therapy Section, in cooperation with the Education Section, has also formulated a "Guide for Nutrition and Diet Therapy Instruction in the Schools of Practical Nursing." Another project has been to prepare articles on nutrition for journals of related professions. Sister Mary Dominic wrote an article on "Diet for the Aged" published in the Maryland Medical Association Journal, and Ruth Dyson has prepared a discussion on "Calculation of the Diabetic Diet" to submit to two publications. A third effort this year has been the working out of cycle menus for nursing homes, in order to simplify and clarify problems of modified diets. The form was drawn up to include: general, diabetic, sodium-restricted, fat-restricted, bland, and soft diets.

September 19 will be the date of the first fall meeting of the Maryland Association in Baltimore. Dr. Don Carlos Faith, George Washington University, Washington, will speak on "Complexities of Personnel Management." At this meeting, Ernestine Becker McCollum, who is retiring from the Johns Hopkins University, will be guest of honor.

New Jersey Dietetic Association. This month, the Diet Therapy and Community Nutrition Sections and the Public Relations Committee of the New Jersey Dietetic Association will join hands in presenting a "Patient Education Institute." Dr. Arthur Krosnick, Program Coordinator of Diabetes, Chronic Illness Control, New Jersey Department of Health will be one of the principal speakers.

Washington State Dietetic Association. The *Walla Walla Dietetic Association* during 1959-60 conducted a nutrition course for leaders of the community churches, professional organizations, and teachers of Walla Walla College. Classes were held weekly for six weeks, with approximately a hundred people attending each session. The first half of each lesson was devoted to a lecture, with the second half a food demonstration. More than a dozen doctors, nurses, and dentists assisted in the instructional phase of the program, which was designed to inform key people in the community of the latest nutritional knowledge.

Walla Walla dietitians are planning to conduct a workshop for nursing home cooks and food service supervisors in the area.

Another Modern School Speeds Food Service

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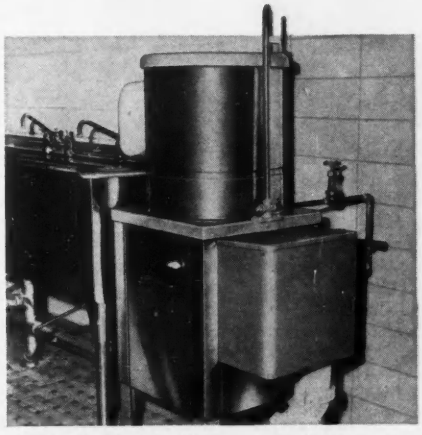
Floyd Winslow Grade School, Rush-Henrietta, N. Y. Architect: Benedict Ade, Rochester, N. Y. Supervising Principal, John Parker; Cafeteria Director, Mrs. Kay Zoppoth.

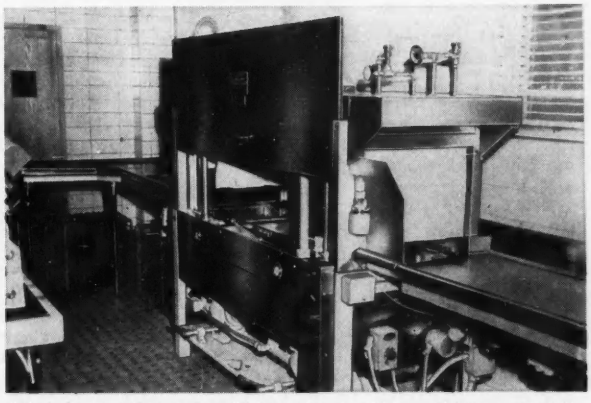
Toledo Installation by Main-Ford General Supply Co., Rochester, N. Y.

In public and private institutions the nation over—wherever groups must be fed efficiently and economically—you'll find Toledos on the job. The new Floyd Winslow School in the Rush-Henrietta Central School System at Henrietta, N. Y., is a good example. Its forward-thinking planners designed this ultra-modern new school with the educational needs of tomorrow, as well as today, in mind . . . one of the many reasons why Toledo kitchen machines were selected. In the years ahead, the Floyd Winslow School cafeteria will continue to provide the same efficient food service its faculty and students enjoy today.

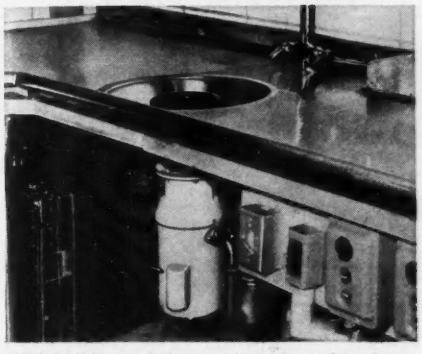
Whether your volume requirements are large or small, Toledo's wide line makes it easy to select the equipment that fits your needs. Let us show you the exceptional advantages of installing Toledos in your kitchen. Or write for Bulletin SD-3814 — your guide to the latest in kitchen efficiency.



Toledo Double-Action Peeler peels a full 30 lb. charge in 1 to 1¼ minutes.



Toledo Conveyor Dishwasher with Prewash makes dishes and glassware sparkle. Features exclusive Panoramic door.



Toledo Disposer is heavy-duty engineered for long, maintenance-free service . . . provides easy, sanitary disposal of food wastes.

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Toledo "10" Slicer . . . Combines handsome design with fast, easy operation. Easy to clean—parts tilt away or are quickly removable. Efficient sharpening. Positive gauge plate control.

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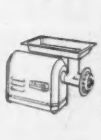
Dishwashers . . . Fast, thorough, dependable. Available in door, counter, conveyor and rackless types. Advanced design, easy cleaning.



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Association Activities

A. D. A. Management Seminar. Ninety-one members from twenty-eight states, the District of Columbia, and Canada attended the first Management Seminar sponsored by The American Dietetic Association. It was presented in cooperation with the Graduate School of Business Administration of the University of Pittsburgh and held in Pittsburgh, July 11 to 15. Directors and assistant directors of hospital departments of dietetics, directors of school food service and college residence halls, college faculty, shared dietitians, and representatives from business organizations were among those present. Jane Hartman, Food Consultant, and Professor C. L. Van Sickle, Director, Management Problems for Executives, Graduate School of Business Administration, University of Pittsburgh, served as coordinators for the Seminar.

Business management and executive skills were emphasized in the program. Major areas of business management; namely, organization, administration, objectives, policies, plans, and controls were discussed by the Seminar faculty. The role of job evaluation, particularly the job analysis phase in organizational planning, hiring, and promotion, as well as the manner in which equitable wages and salaries are established was also discussed.

The current status of testing techniques in industry and the reliability and validity of a testing program were covered, and suggestions were made for the development of an effective program.

Several lectures pertained to financial management and the use of financial records. The value of the scattergram in budget planning was explained.

Personnel programs and the development of an effective program were described in detail.

Several members of the faculty lectured throughout the week, thus providing continuity and permitting the development of subject areas related to human and conceptual skills.

43rd Annual Meeting. We hope you will be with us for the 43rd A.D.A. Annual Meeting in Cleveland, October 18 to 21. You will want to make your hotel reservation *immediately* if you have not already done so.

Past issues of the Journal, A.D.A. mailings to members, and issues of the *Courier* have highlighted details about the Meeting. This issue of the Journal includes both information about Cleveland and a tentative program outline of topics and speakers for the meeting.

We would like to call your attention to the Monday evening session of the Annual Meeting. An interesting program has been planned to include a panel discussing our revised Section activities. Four workshops will follow, each led by a national Section chairman. We are eager that members participate in this meeting.

On Tuesday evening, October 18, we are initiating a new type of event; a buffet supper planned for both members and exhibitors. This will provide an opportunity for members to meet exhibitors and to unhurriedly visit the 285-booth exhibition, which will remain open that evening until 9:00 p.m. The Annual Banquet is Thursday evening, October 20; at that time the awards of the Association will be presented and the new career guidance slide film will be premiered.

Executive Board Meeting. The A.D.A. Executive Board met June 20 to 24 in Chicago at Headquarters office.

Progress reports of standing and special committees and boards were reviewed, and comments and suggestions sent to committee chairmen. During the A.D.A. Annual Meeting, there will be an opportunity to hear these reports in various meetings, and they will also be available in the 1959-1960 *Annual Reports and Proceedings*, to be published later.

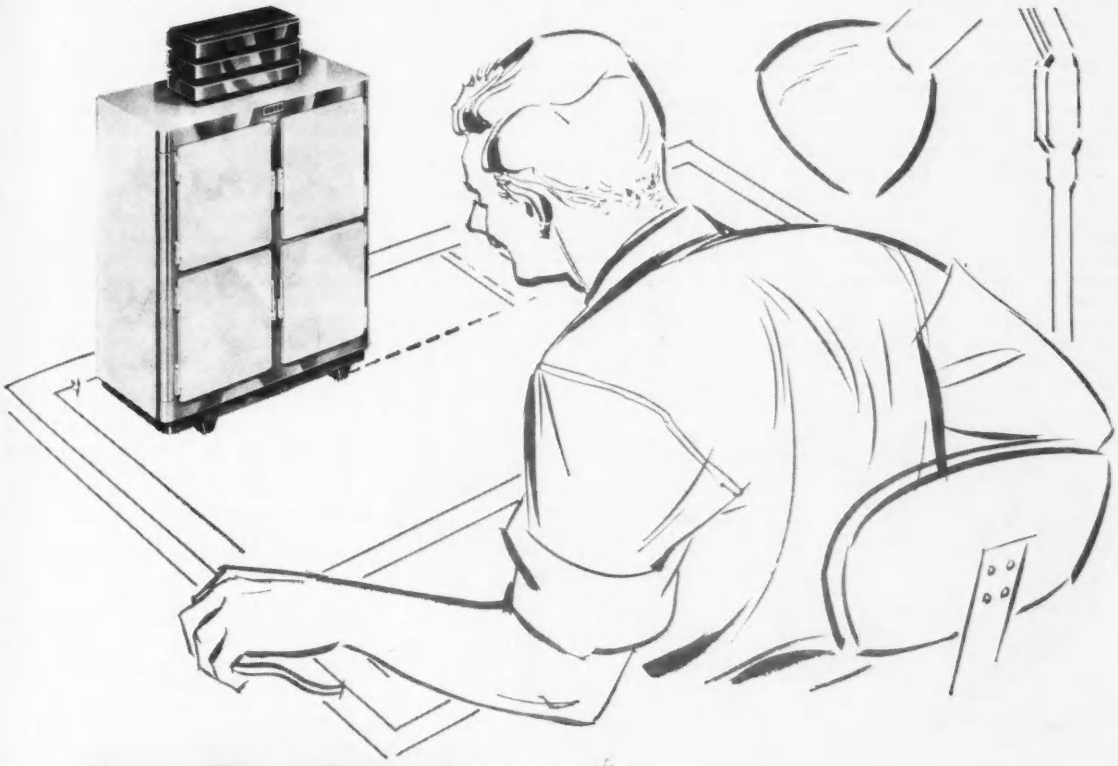
Plans were reviewed for the pilot A.D.A. Seminars scheduled for Pittsburgh and Urbana, Illinois.

Each member of the Headquarters staff discussed with the Executive Board his or her present and anticipated activities. Myrtle Van Horne's resignation as Director of the Food Service Supervisors' Training Project was regretfully accepted. Sallie J. Mooring was welcomed in that capacity to succeed Miss Van Horne. Miss Mooring is on leave of absence from the North Carolina State Board of Health.

At the request of the Coordinating Cabinet, two special committees of that body, namely, the Committee to Revise Section Objectives with Lorraine Weng as Chairman and the Program of Work Committee with Gertrude Miller as Chairman, met with the Executive Board. The Chairman of the Committee on Future Development of the Association, Lucille M. Refshauge, was also invited. Miss Weng reviewed the work of her Committee to date. Each Section chairman had developed objectives and implementations for her Section. The assignment was given to each Chairman to develop a program of work to supplement these "implementations." The report of the Committee to Revise Section Objectives will be referred to the Coordinating Cabinet for action.

It was reported that the majority of members have returned the questionnaire attached to the dues bill. It is anticipated from an analysis of this information we will be in a better position to determine the work pattern of the membership.

A.H.A.-A.D.A. Dietary Institute.



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Seventy-seven registered for the Dietary Department Administration Institute conducted by the American Hospital Association in cooperation with The American Dietetic Association, held June 20 to 24 in San Francisco. The institute was under the co-sponsorship of the Association of Western Hospitals, California Hospital Association, California Dietetic Association, San Francisco Hospital Conference, and the Bay Area Regional Dietetic Association. Ruth Kahn and Clara Zempel served as coordinators.

Topics discussed during the Institute were hospital relations, communication, financial management through personnel management, new trends in foods and equipment, and the hospital of the future. Speakers included Dolores Nyhus, Jane Sedgwick Pirkey, and Earleen Wickstrom.

Tours were taken to Marin General Hospital and to the University of California Medical Center.

Women's Bureau Anniversary. Jean M. Pope, National Institutes of Health, Bethesda, Maryland, served as A.D.A. representative at the fortieth Anniversary Conference of the Women's Bureau, Department of Labor, in Washington, D.C., June 2 and 3. Appearing on the program were Alice Leopold, Assistant to Secretary of Labor; The Honorable James T. O'Connell, Under Secretary of Labor, Dr. Mary I. Bunting, President of Radcliffe College; Margaret Culkin Banning; Esther Peterson, Legislative Representative, A.F.L.; The Honorable Francis Wilcox, Assistant Secretary of State for International and Organization Affairs; and The Honorable George V. Allen, Director, U.S. Information Agency.

It is predicted that the number of working women will increase 25 per cent in the next decade. At present, one-third of the working force is women. Our economic machine thrives on younger people. However, in the ten years ahead, we should expect to see 7½ million youngsters drop out of school before finishing high school. To get the most out of the available woman power in the future, there will need to be more attention paid to the career plans of girls in the schools. By 1970, the labor force will include 55 per cent of all women from the forty-five to fifty-four-year age group.

The majority of the 24 million working women are married. Homemakers must be part of the community, but their most important calling is the management of the home. Married women who plan to return to work must keep themselves trained in order to qualify. Women usually work because they need the money. Therefore, the girl of today must be prepared to work both in and out of the home.

A.D.A. Representatives. Lt. Col. Katharine E. Manchester will represent the Association at the course on *Management of Mass Casualties*, September 12 to 17 at the Walter Reed Army Institute of Research, Washington, D.C.

Jeanne Tillotson, National Institutes of Health, will represent A.D.A. at the *National Conference on Citizenship*, September 16 to 20, in Washington, D.C.

Dorothy Kinnear, Columbia-Presbyterian Medical Center, New York City, will attend as A.D.A. representative the Golden Jubilee Convention for *Camp Fire Girls* to be held in New York City, November 1 to 3.

Obituary

Mary Scallon. Mary Scallon, dietitian at the Veterans Administration Hospital, Madison, Wisconsin, died on June 20 following emergency surgery. Miss Scallon, who was twenty-nine years old, had been a member of the Association since 1954. She will be recalled by those who attended the Association's banquet in Milwaukee in 1956 as the soloist at that function.

News of Products and Services

A "Treasure Kit" of coffee and urn data is offered by *S. Blickman, Inc.* A new twenty-eight-page catalog in two colors describes the latest types of

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Save Time!
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LOW SODIUM milk
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LOW SODIUM MILK
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for restricted sodium diets
Pour LOW SODIUM MILK right from the can to patient's glass. Save time because there's no mixing. And each glass is assured the same natural consistency. LOW SODIUM MILK can be used whenever a sodium restricted diet is indicated.
Low Sodium Milk fortifies the nutritional value of any diet for it contains many of the proteins, vitamins and minerals so essential for good health and growth.
Each quart contains approximately 5% carbohydrates, 3.5% protein, 3.5% butterfat, 675 calories, AND LESS THAN 50MG. SODIUM.
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Pamper Patients with Lamb

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That's what you do when you feature LAMB often. To hospital patients, LAMB is a luxury meat—a sign they're being pampered and cared for. It's just as true with the lower cost cuts like shoulder chops and roasts, lamb stew and the "braising" cuts.

Yet—LAMB is reasonably priced. It comes in a range of cuts that provide welcome variety for patients' "bored appetites."

What's more, it gives you easy portion control, especially with cuts like rolled shoulder . . . easy to slice and serve even with unskilled help.

Above all—young, tender LAMB *tastes* so good. It rewards your cook's seasoning skill—it responds beautifully to a little decoration and garnishing that makes patients' trays very tempting.

Plan to visit us at the Convention in Cleveland. We'll be at Booth 320.

Would you like to add some of our serving ideas to your own? We have a technical bulletin full of them—"Nutritionally Evaluated Quantity-Recipes for Lamb." Why not send for it now—it will help you add to your variety of meal-planning ideas. Mail coupon below!

American Lamb Council, Denver, Colorado

LAMB, Dept. AD-7
18 E. Second Avenue, Denver 3, Colorado

Please send me your Technical Bulletin, "Nutritionally Evaluated Quantity-Recipes for Lamb," No. L-26.

Name_____

Position_____

Institution_____

Address_____

City_____ Zone___ State_____

1-50

urns and how and why they are used. It covers twelve models in twenty sizes from 3- to 300-gal. capacities, in single, combination, twin, and two- and three-piece batteries with specifications, drawings and photos, lists of features, architectural information on water and fuel connections, and why different types of urns are used in varying types of operations. The Tri-Saver brewing system and the improvements it effects in coffee quality while reducing labor and maintenance costs are also described. In the National Restaurant Association and Coffee Brewing Institute bulletin, "About Good Coffee," which is part of the kit, are recipes for coffee drinks, the preparation of iced coffee, and urn maintenance. Reprints of a recent series of trade paper articles, "How to Get Your Money's Worth in Coffee Urns!" are also included. How to protect your coffee urn against lime deposits and how hard water may cause equipment trouble are discussed in a two-page leaflet.

For a portion-control item, *Pfaelzer Brothers* has added to its institutional line breaded veal drumsticks of choice chopped veal. Placed on a skewer for easy handling, they are ready for deep-fat frying or baking. Each weighs 2 oz. and is sold in 10-lb. boxes containing 80 pieces.

A seventy-four-item gourmet line of spices, herbs, and seasoning blends for sale in groceries and supermarkets has been introduced by *Durkee Famous Foods*. Included are nine special seasonings pre-blended for use with specific dishes as fish, fried chicken, or roast meat. Pre-pricing of the spices is an innovation. Prices are printed on perforated tabs attached to the back label of each bottle at the factory. By tearing off the tab, the non-commercial appearance of the container is maintained. The container is a tapered bottle with fluted sides to give a no-slip grip; jar openings are large enough for teaspoon measuring and are equipped with plastic shaker fitments. Stability on the kitchen shelf is provided by the wide base and nearly flat front.

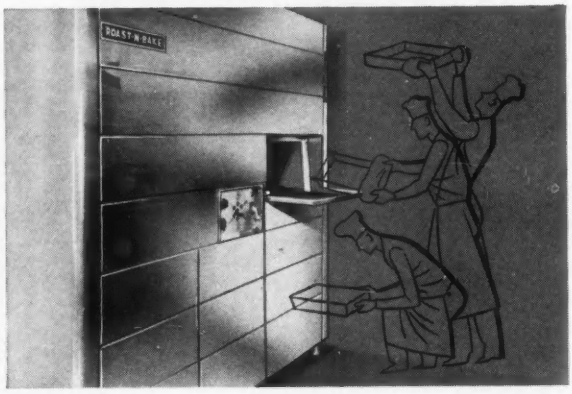
The Hobart Manufacturing Company has introduced a "compact" four-stage commercial dishwashing machine—a 13-ft., flight-type model with fully automatic operation. The new model (FT-13) will power scrap, power wash, power rinse, and final rinse dishes with the speed and efficiency previously found only in dishwashers at least 20 ft. long. The new unit features a 6-ft. center section for washing and rinsing. This model is recommended for kitchens serving up to 700 persons per meal. The FT-13 consists of a 3½-ft. loading and recirculating dish scrapping unit; a 6-ft. center unit for the power wash and double rinsing or sanitizing; and a 3½-ft. drying and unloading extension.

A line of mobile table racks, consisting of six standard models, has been developed by *Crescent Metal Products*. These Cres-Cor racks are adaptable for a variety of uses, including under-the-table storage, auxiliary work surface, conveying large kettles and bulky supplies from one work station to another. The basic unit consists of a pass-through compartment enclosed on two sides with corrugated aluminum which will accommodate 18 by 26 in. bun pans. A second compartment with removable bottom shelf is open on three sides, assuring easy access for storing and handling bulky items. Large swivel casters provide mobility for quick, easy positioning. Two of the casters are equipped with foot locks, and casters are interchangeable for positioning foot locks as required. The standard mobile table rack is 34 in. high and is available in a choice of three different work surface tops: wood, stainless steel, and aluminum.

"Pick-a-Rack" is a new, two-part rack for facilitating dishwashing introduced by *Seco Company, Inc.* A metal carrier, or frame, holds the all-plastisol, light-weight rack full of glasses or cups as it proceeds through the dishwashing machine. The rack-full of dishes is then lifted out of the carrier or frame and used to store the clean dishes in the serving area. The chrome-plated carriers are used only to protect and carry the racks through the dishwasher, only one carrier being needed for every four to ten racks. The racks themselves are color coded

NO STOOPING...NO STRETCHING...NO PAN TURNING

THE PETERSEN
ROAST-N-BAKE OVEN
IS UNMATCHED FOR CONVENIENCE, ECONOMY AND PERFORMANCE



The Petersen Roast-N-Bake oven is a compact, highly versatile oven that roasts, bakes and cooks to perfection with ease and economy. There's no tiresome stooping or stretching because the oven door is conveniently located at arm-height. There's no pan turning because the thermostatically controlled oven provides uniform heat across the trays without hot spots. Semi-direct gas fired or electrically heated.

The Petersen Roast-N-Bake has six oversized trays, 21¼" by 26" and is the only oven that offers the advantage of "add-a-tray shelves" to double bun pan capacity. An outstanding exclusive feature of the Roast-N-Bake is the big 52" x 24" easily removable front door to provide access into the oven interior.

The Petersen Roast-N-Bake is finished in lustrous stainless steel. Get all the advantages in your next oven . . . get a Petersen.

BAKER PERKINS INC. SAGINAW, MICHIGAN

Fill in and mail the coupon for complete information on the Roast-N-Bake as well as other Petersen Revolving Tray Ovens.

SEE US AT THE SHOW
BOOTH NO. 712

BAKER PERKINS INC.
1000 HESS STREET, SAGINAW, MICHIGAN

☐ Please send me your list of installations including local area plants.
☐ I am interested in a free survey, without obligation.

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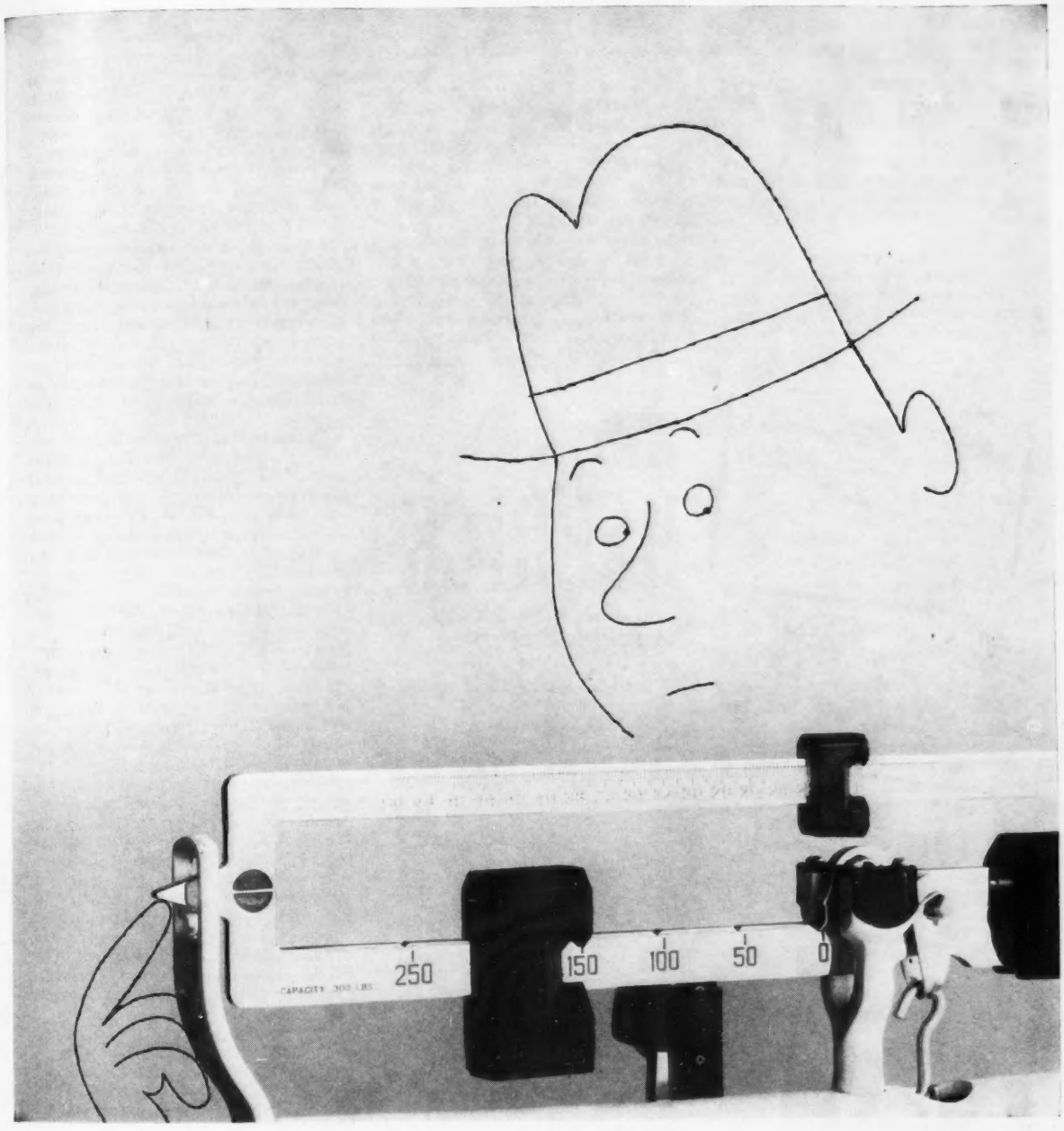


Sixty million Americans, low calorie, and you....

With almost one out of every three Americans watching his weight, meal planning takes on an additional problem. Low calorie foods often lack *flavor*—nature's natural incentive to eating adequately. Realizing the importance of flavor to health recovery, Milani Foods has scientifically prepared a special line of low calorie dressings and sauces to supply this *must* to diets.

Milani's new line is the first *complete* line of low calorie dressings and sauces. They may be used freely in salad, meat or fish menus. And they really taste good.

For information write to Dpt. ADA-9-60. Louis Milani Foods, Inc., 12312 West Olympic Blvd., Los Angeles 64, California

all proud products of

Milani

WHAT VARIETY

French Lady Dressing
Bleu Cheese Dressing
Italian Dressing
Dill Sauce
Thousand Island Dressing
Whipped Dressing
Cole Slaw Dressing
Tartar Sauce
Russian Dressing
All low calorie!

(C) LMFI, 1959

in red, blue, and yellow. All cup racks are blue, glass racks are yellow, and open utility racks are red. Silver racks are also blue.

A new, 1960 edition of the *Campbell Soup Company's* booklet, "New 1960 Cost-Cutting Main Dish Recipes" has been prepared for distribution to the institutional food market. This new edition features seven main dishes and four sauces made from canned condensed soups. All are illustrated in full color.

On the consumer market, *Campbell Soup Company's* newest addition to its line of canned foods is Campbell's Beans and Franks. Each 1-lb. can contains beans and nine small franks cooked together in Campbell's slow-simmered tomato sauce. This new product should be available in markets by September 15.

An information folder is now available from *Legion Utensils Co., Inc.* which describes its Dry-Hot Plate system of transporting meals from food preparation area to the patient's bedside. The folder is illustrated with pictures of the system in use in a New York City Hospital.

Salvajor Company has developed a new, all-purpose water-scrapping machine known as the Salvajor Scrap-Master. Rectangular in design, this new machine has a large water-scrap-trough which allows two or more operators to work at the same time. It will completely water-scrap soiled dishes and food trays by flushing away food waste under a heavy plume of warm, recirculated water. Sorting of food waste is practically eliminated, since bones, milk and cereal cartons, and cooked and uncooked food waste is easily disposed of in the grinder. After waste is flushed from tableware, the flow of water automatically carries it to the heavy-duty grinder for instant shredding. Tableware accidentally dropped in the machine is trapped without damage in a specially designed salvage basin. Food preparation waste can be unloaded into the trough and the operator need not remain to feed the waste into the disposer, as the heavy water flow automatically carries it into the disposer.

"Spiced Pear Gelatin Salad" has been introduced by *The Borden Company*. The light, cider-colored molded gelatin base is flavored with pear juice and accented with a whiff of clove. Diced pears and maraschino cherry halves are blended throughout the gelatin. The new salad is packaged in 14-oz., round, reusable, clear plastic containers with fluted side walls and snap-on, translucent lids.

"Shock-absorber" protection to prevent chipping of serving trays is provided by Sani-Stack plastisol-coated plastic bands for tray racks, now available from *Metropolitan Wire Goods Corporation*. The bands snap on along the bottom and sides of the rack, cushioning the trays and deadening clatter as well. The plastic "shock absorber" bands are available for Sani-Stack racks now in use or can be installed on regular tray racks when ordered.

Nor-Lake, Inc. has announced a new, self-contained ice cube maker which will produce 32 trays, 576 cubes, or 46 lb. ice in 3 to 3½ hr. The stainless steel storage drawer is located for easy accessibility below the tray section.

Nor-Lake, Inc. has also redesigned and added new sizes to its plug-in panel refrigeration systems. To meet the growing demand for walk-in refrigeration, Nor-Lake is expanding its manufacturing facilities for such units. Nor-Lake walk-in coolers and freezers are available in any combination of enamel, aluminum, stainless steel, or galvanized interiors and exteriors. Wall thicknesses include: 4 in. (36°F.); 6 in. (0°F.); 8 in. (−20°F.); and 10 in. (−40°F.).

A pre-mixed white sauce base for food service establishments has been introduced by *S. Gumpert Co., Inc.* The base needs no refrigeration and requires only the addition of liquid and brief cooking while stirring. Large batches or individual portions can be quickly made ready for use in any desired consistency. Five recipe cards, illustrating possible uses for this sauce base, are available from the company as follows: shrimp à la Newburg, beef stroganoff, chicken pot pie,

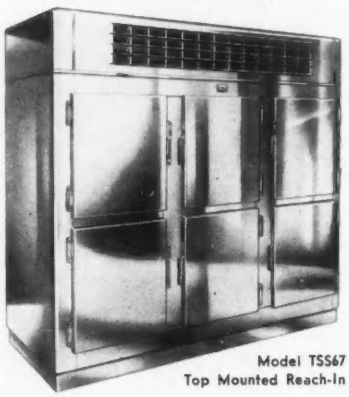
WEST LEYDEN HIGH SCHOOL
NORTHLAKE, ILLINOIS
ROYAL PALM YACHT & COUNTRY CLUB
BOCA RATON, FLORIDA
BISHOP BUFFETS
DES MOINES AND CEDAR RAPIDS, IOWA
SOUTHLAND CENTER, DALLAS, TEXAS
Owner: Southland Life Insurance Company
Architects & Engineers: Welton Becket, FAIA and Assoc.
Consulting Architect: Mark Lemmon
Construction Supervision: The Vanguard Corp., Dallas

HERRICK . . . the Aristocrat of Refrigerators

HERRICK

STAINLESS STEEL REFRIGERATORS

"Right at home" in all the best places



Model TSS67
Top Mounted Reach-In

Wherever quality-minded management demands the best in refrigeration, more than likely you'll find HERRICK Stainless Steel Reach-Ins and Coolers on the job. HERRICK's solid reputation for long, trouble-free service in hot, busy kitchens has made it the choice of institutions throughout the land. HERRICK will keep *your* foods at peak freshness and flavor, too, at a year-after-year cost that's surprisingly low. It will pay you well to investigate HERRICK. Why not do it today?

SEE OUR CATALOG IN SWEET'S

HERRICK REFRIGERATOR COMPANY, Waterloo, Ia.

Write Dept. D for the name of your nearest Herrick supplier.

PROTEIN

essential for health and vigor

With other nutrients, protein is needed to repair and replace body substances used up in daily living . . . and to maintain health and vigor in all body tissues.

Healthful longevity appears to be favored by diets which provide generous amounts of high quality protein and all essential nutrients . . . without excess calorie intakes. Protein needs remain fairly constant throughout adult life . . . increasing with pregnancy and lactation . . . increasing with infection, any febrile or debilitating illness or wound healing. Calorie requirement declines with age after twenty-five. This suggests an increasing ratio of protein to carbohydrate and fat in the diet is desirable as calorie intake diminishes.

The essential amino acid requirements of the normal healthy adult can be provided by 2.6 cups of milk. The minimum adult requirement for protein, when supplied by cow's milk, has been estimated by the Food and Nutrition Board as . . . 0.39 to 0.41 gm. per kilogram body weight for the adult man . . . 0.42 to 0.43 gm. per kilogram for the adult woman . . . increasing to 0.56 gm. per kilogram during pregnancy and 0.71 gm. per kilogram during lactation.

Thus minimum protein and amino acid needs could be satisfied daily by . . . 3.3 cups of milk for the 70 kilogram man . . . 2.9 cups of milk for the 58 kilogram woman . . . 3.8 cups of milk for the same woman during pregnancy . . . and 4.8 cups while she nurses her baby.

Milk is man's first dietary source of protein. Cow's milk, as such and in dairy foods, can continue to supply easily digested high quality protein at all periods of life . . . in various forms . . . at any course of any meal of the day . . . in any ratio of protein to fat which may be desired.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

Since 1915...promoting better health through nutrition research and education

NATIONAL DAIRY COUNCIL

A non-profit organization

111 NORTH CANAL STREET • CHICAGO 6, ILLINOIS

THIS ADVERTISEMENT IS ONE OF A SERIES. REPRINTS ARE AVAILABLE UPON REQUEST.

chicken in curry sauce, and oyster stew.

For schools, hospitals, or use inside other types of institutions, *Cushman Motor Works* has constructed the Cushman Electric Truckster, to haul mobile food conveyors in a food train. The vehicle is run by a battery-driven electric motor which gives off no poisonous gasoline fumes. Weighing 1265 lb. the lightweight vehicle does not wear a path over the terrain when in use outdoors and its quiet electrical motor operates with a minimum of noise indoors. A children's home at Little Rock, operating decentralized cottage-type units for mentally-handicapped children, found the vehicle could operate for 50 mi. without recharging and reach a speed of 15 m.p.h. delivering hot food quickly to 256 children in eight cottages.

A new Swiss-made frying pan, the Novetti skillet, is offered by *Pampered Kitchens, Inc.* A baked-on silicone lining permits pan-broiling, frying, or sautéing of foods with almost no butter, oil, or other fat. A chicken can be fried in ½ pat of butter and a 6-egg omelet requires even less. The lining prevents sticking of food. A wipe with a paper towel is all the cleaning the pan requires. Three sizes are available: 7½, 9½, and 11 in.

Pillsbury is offering a "Rapid Roll Mix" which cuts preparation time for soft dinner rolls 49 per cent by eliminating the fermentation period. Dough may now be taken from the mixing machine direct to the make-up table. The vital proofing period is retained, resulting in a good tasting roll. Portion costs are 1.3 cents for a 1¼-oz. roll.

For the institutional market, *Pillsbury* is also offering a new Wheat Muffin Mix. With a tender texture and a resilient crumb, which resists crumbling and breaking, opportunities for unlimited variety are provided by the addition of nuts or fruit. Wheat Muffin Mix costs 1.8 cents for each 1½-oz. muffin. The product is packed in bales of six 5-lb. bags, each bag yielding 76 muffins.

New interfolded aluminum foil sheets, designed specifically for institutional use in wrapping baking potatoes, have been announced by *Aluminum Company of America.* Called "Alcoa Potato Wrap," the foil is packaged in boxes containing 200 individual 9 by 10¾ in. sheets. As each sheet is removed, the next sheet is automatically pulled up ready for use. Alcoa also offers interfolded sheets in 12 by 10¾ in. size. A third product of individual sheets of foil interleaved with paper slip sheets, called "Alcoa Wrap Rectangles," is packed in easy dispenser boxes in an assortment of sizes.

A new and improved Corn Bread and Muffin Mix from *The Quaker Oats Company* requires only the addition of water. Corn bread with a golden brown crust and delicious corn flavor retains moistness, taste, and shape, and never crumbles. It is packed in 5-lb. bags.

Fully cooked corned beef brisket, individually wrapped in Cryovac, is the newest item in *Pfaelzer Brothers'* line of meats for volume feeding operations. The product is trimmed to specifications which call for ¼ in. external fat and removal of the entire deckle. The cooked corned beef briskets are available in plain, mild kosher, and heavy kosher cures in 3 to 5 lb. cooked weight.

Polyethylene dish boxes which are lighter to lift and less expensive than metal boxes are supplied with a new stainless steel bussing station truck manufactured by *Jarvis & Jarvis, Inc.* The all-welded stainless chassis is 16-gauge, 1-in. stainless steel tubing, with double-folded, 18-gauge, No. 4 stainless box supports. The truck is equipped with 5-in. swivel casters for easy steering and rolling. The dish boxes will not chip, shatter, or dent and also resist acids and detergents. The are available in coffee-cream tone.

A new shortening made from domestic and imported vegetable oils, "Kaola Gold," has been introduced by *Durkee Famous Foods.* It was designed especially to grill or pan fry foods, and since no salt or water is added, spattering is reduced. The shortening contains no milk. It is not intended for deep frying. The

Let CREAM OF RICE help solve your modified diet problems

1

EXTRA NOURISHMENT

Cream of Rice is rich in Iron, plus Vitamin B_1, Riboflavin and Niacin.

New Medical Study proves that Cream of Rice is *easier to digest than any other kind of cereal.* Gives quick food energy, too—within a few minutes after eating. Many pediatricians recommend it for growing children—and as one of baby's first solid foods.

And many doctors recommend Cream of Rice in modified diets for food allergies, ulcers, high blood pressure, hypertension, intestinal distress and digestive troubles.

2

EASY TO PREPARE

Cream of Rice, a delicious, nourishing, easy-to-digest cereal, cooks in just ½ minute! New, easy-pouring spout!

3

CREAMY RICE TASTE

What's more, Cream of Rice is as delicious as it is nutritious. That's why it's so good as a breakfast cereal, too! Adults and children alike will enjoy its creamy deliciousness.

Guaranteed by Good Housekeeping

COMMENDED BY PARENTS' MAGAZINE

FREE!
Professional Sample

Send your name and address to:
Grocery Store Products Co.
Dept. C9J
West Chester, Pa.

Goldwater Memorial Hospital, Welfare Island, New York City, where gas-fired Vulcan cooking equipment handles 1400 meals a day, including special diets.

Goldwater Memorial Hospital expedites 4100 meals a day with GAS and VULCAN

Tremendous volume is only one of the problems in the busy kitchen of the Goldwater Memorial Hospital in New York. Of the 4100 meals cooked daily, hundreds must conform to special dietary menus. The whole operation, which is under the supervision of dietitians, is handled most efficiently with a huge battery of gas-fired Vulcan equipment. These streamlined, stainless steel Vulcan Gas ranges, fryers, broilers, and other units offer every advantage of modern gas cooking. Precise temperature control. Fast recovery. Flexibility. Unbeatable fuel economy.

Owners of Vulcan gas equipment appreciate its long-lasting ruggedness and versatility. Cooks find that it was designed with their needs in mind. Vulcan and gas help you cook easier, faster, better . . . and your operating costs stay low. For information on the complete Vulcan line of gas-fired cooking equipment, call your Gas Company's Commercial Sales Specialist, or write to Vulcan-Hart Corporation, P. O. Box 696, Louisville 1, Kentucky.

American Gas Association.

Partial view of streamlined battery of Vulcan cooking at Goldwater Memorial Hospital. These units meet the most rigid schedules with the speed and efficiency of modern gas cooking.

FOR COOKING... GAS IS GOOD BUSINESS!

shortening combines a delicate flavor and yellow color with the ability to stand up under rigorous conditions. In a demonstration Kaola Gold was held at a temperature of 425°F. for long periods, without separating, burning out, or turning brown. Because of its rapid-melt characteristics, it leaves no greasy after-taste. No refrigeration is required. It is packed in 5-gal. tins with 7-in. diameter friction lids which allow easy removal of contents, either by spooning or pouring when warm.

The Caddy Line of *Caddy Corporation of America* now features a combination of three coordinated mobile units designated as the "Mobile Coffee Station." The Cup Caddy has a capacity for 112 cups with 14 new plastic trays and a wire rack below for used tray storage. It has twin compartments and measures 23 by 26½ by 31 in. The Urn Caddy has a non-splash, long drainer and shelf for saucer storage, and measures 34 by 21¾ by 35¼ in. The three-shelf Caddy serves as a work area, utility truck or, with dish boxes, for bussing, and measures 34 by 21¾ by 35½ in. All are of stainless steel and welded construction and are equipped with Neoprene tires and ball bearing swivel casters.

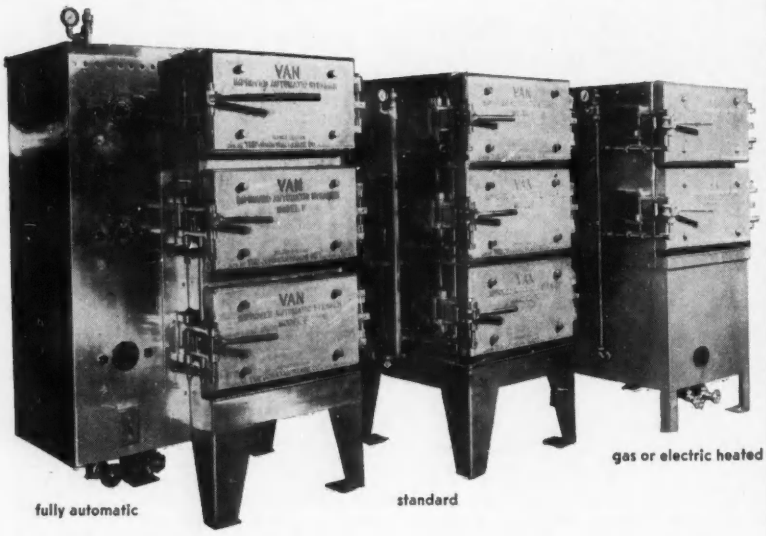
The new T-305 bulk Silver Caddy accomodates 120 doz. pieces of silverware. Eight deep, removable silverware compartments provide for separation. Loaded in the dishwashing room, it may be easily wheeled directly to the dining area with no rehandling necessary, or it may serve as a cutlery station in a cafeteria line.

Three new ice storage bins for storing flaked and cubed ice are now available from *Scotsman*. The new bins have 400 lb. 1250 lb. and 1500 lb. capacities, respectively. The 400-lb. bin fits under a Scotsman Super Cuber SC-500 E. The 1250-lb. model may be used with either one or two SC-500 E's or an SC-500 E and a continuous-flow Scotsman Super Flaker. The Super Flaker can store up to 1500 lb. in the vertical, three-door model. All bins are available in baked-on enamel or stainless steel exteriors, watertight stainless interiors, 3-in. fiber glass insulations, chrome-plated brass hardware, and multiple doors for easy ice removal.

Bloomfield Industries, Inc. has employed Marlox, a virtually indestructible plastic, to mold a new perforated cylinder for storing and handling silver. Fitted into a new holder, also of plastic, the unit is lighter in weight, easier to handle, and simple to clean. Designed to hold 300 lb. it will support a half gross knives or forks, and several gross spoons. Both cylinders and rack are unaffected by food acids or alkalis. They may be sterilized through any commercial dishwasher. Color remains bright and attractive because it is molded directly into the plastic. For transporting cylinders, a new G-cylinder stainless steel rack, specially reinforced and with a comfort-shaped carrying handle, is available. Cylinders are also available in stainless steel having the same dimensional specifications for complete interchangeability.

Completely new in design is the Springlide caster from *Lakeside Manufacturing, Inc.* Instead of the usual center-mounted wheel that transmits every jolt directly to the cart and its contents, Springlide's 5-in. wheel is mounted off-center; each jolt is absorbed and cushioned by a tightly wound, 2-in. steel spring which is part of the wheel assembly. This engineering combination eliminates wheel vibration and noise and reduces shock and jars which loosen cart construction. The wheel is mounted to a double-ball-race swivel, has ball-bearing axles and replaceable rubber tires. The caster is optional equipment on Lakeside carts and is available for replacement on other brands.

New disposable hot drink cups made of foamed plastic to maintain beverage temperatures and allow handling comfort are being distributed by the *Mid-West-Pak Corporation*. Trademarked "Thermokup," the cups are molded of expandable polystyrene made by Dow Chemical Company. The cups may be used for cold drinks, also. With hot or cold drinks, the cup remains rigid, never becoming soggy. Seamless construction prevents leaks. There are no handles, lids fit tightly and weight is one-third less than conventional cups. The cups will fit into



fully automatic standard gas or electric heated

explore how you can save via Van controlled steam cooking

★ Cooking in Van steamers preserves essential vital minerals and food values ordinarily lost in other methods of cooking. Steam cooking reduces shrinkage, seals the juices in the food, and preserves the vitamins that are lost by boiling or cooking on the range top. The cost of cooking by steam is far less than that of gas, oil, coal, electricity.

★ Cookers are available made of various metals and sizes designed for pressure and non-pressure cooking and for direct steam, gas fired or electric heating. The models illustrated are only three of many available.

★ Write for *Bulletin Sa* and *Time Table* for controlled steam cooking of 81 foods.

The John Van Range Co.

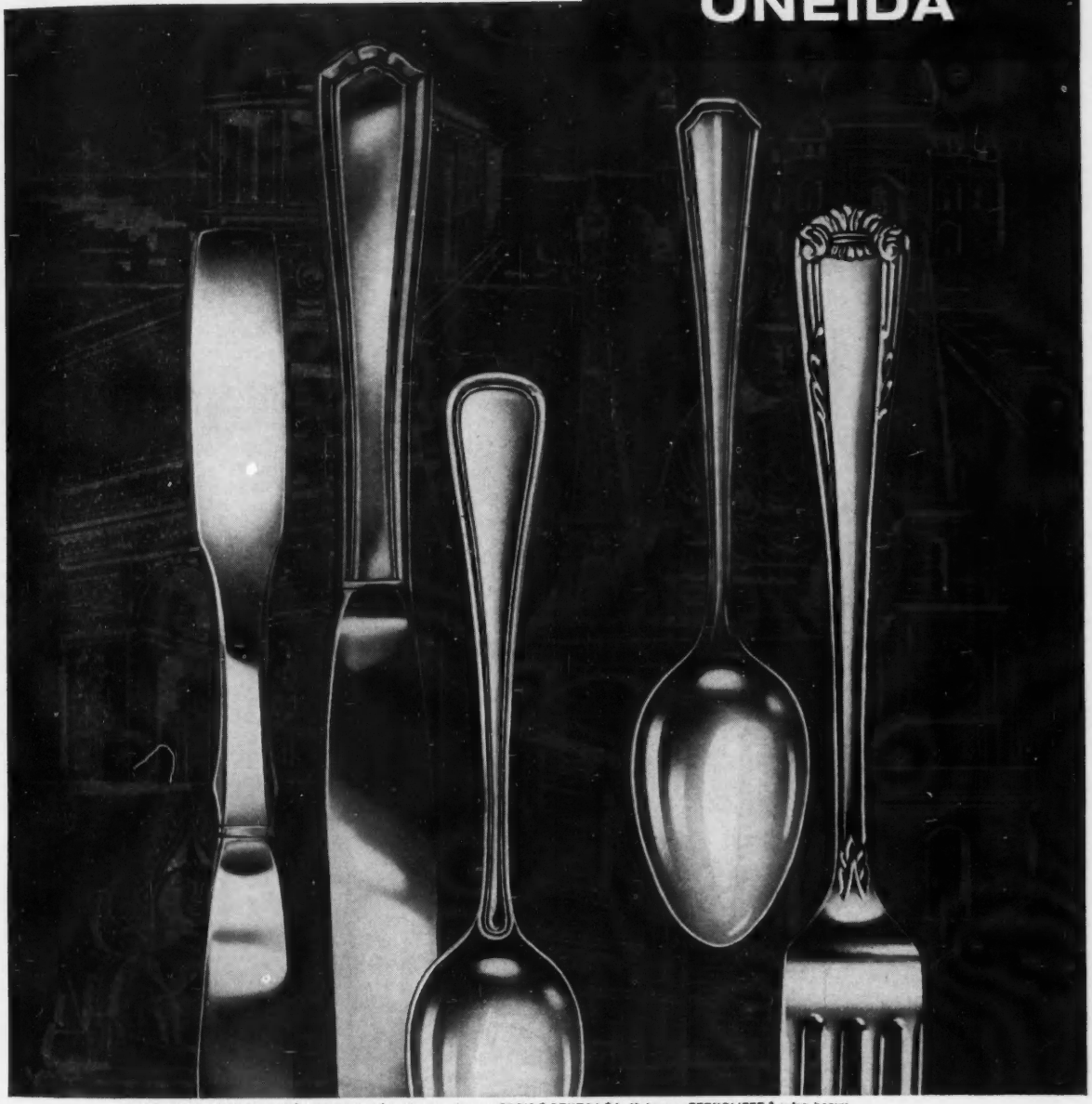
EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

Branches in Principal Cities

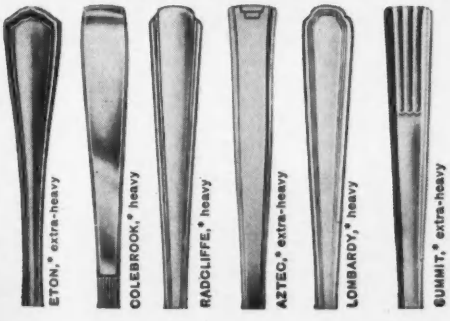
341 EGGLESTON AVENUE CINCINNATI 2, OHIO

Nothing finer the world over...

SILVERPLATE
BY
ONEIDA



Left to right: BENNINGTON,* JEFFERSON,* both extra-heavy; REGIS,* SENECA,* both heavy; FERNCLIFFE,* extra-heavy.



Your hospitality shows—beautifully—when your tables are set with the gleaming warmth of fine silver. And silverplate by Oneida assures you of the finest-quality tableware you can buy: beautiful patterns, proper weight, balance, exclusive balanced plating, costliest finishing operations. Choose this longer-lasting tableware in the pattern and weight to suit your needs.

See your food equipment dealer or write to:
HOTEL AND RESTAURANT DIVISION
ONEIDA SILVERSMITHS ONEIDA, NEW YORK

Creators of fine tableware: Oneida® Ltd. Silversmiths, Oneida® Ltd., Oneida® Hotel Plate, Wm. A. Rogers® Hotel Plate
®TRADEMARKS OF ONEIDA LTD.

trays and racks, and there is no taste transfer.

Cereal Institute, Inc. has released its "Third Report. Cholesterol as Related to Atherosclerosis. A Review of the Literature—July 1958 to July 1959." Published in a thirty-four-page, spiral-bound booklet, this third review is limited to the literature dealing with human beings. The author is Dr. Helen I. Mattill. The material presented has been centered exclusively on the changes in serum cholesterol and their effects on atherosclerosis and coronary artery disease under changing conditions. Chapters on epidemiology; heredity; diet; sitosterol; nicotinic acid; cholesterol metabolism; age and sex; exercise; stress; anticoagulants; fatty acids; diagnosis; and etiology are followed by a brief summary and a ten-page bibliography.

A new mobile panrack, The Pantree, is announced by the *Pan Tree Rack Co.* The rack is primarily made for compact storage and drying space for pans. The frame is 64 in. high, the base 22 in. by 28 in. Three cantilever shelves of heavy, plastic-coated wire are adjustable on 6-in. centers. The base and frame are heavy gauge steel finished with chip-, acid-, scratch-, and rust-proof paint. Forty-two hangers provide for pots and pans on the outside of the rack, while eighteen smaller hangers on the inside may be used for small tools. Shelves for roasters, bake pans, sheet pans, dish boxes, and trays provide for flat storage. Mounted on 4-in. swivel casters, the mobile Pantree may be moved to any working area.

Colgate Spot Disinfectant Spray with Permachem has been introduced by *Colgate-Palmolive Company* for use in hospitals and public places. Active ingredients are tributyl tin oxide, dialkyl dimethyl ammonium chloride, and salicylic acid. *Staphylococcus aureus, Salmonella choleraesuis,* and *trichophyton* are killed on contact. The long-lasting effectiveness of the spray kills most bacteria that cause infection, odors, mold, and decay. It also inhibits and helps prevent mildew. The pressure pack is equipped with a special valve to provide a wet spray for quick "on-target" action. The spray is available in 1-lb. containers only, packed twelve to a case.

Washburn & Granger, Inc. is offering an automatic refuse and waste can washer, Dean-R Can Washer. The cabinet type washer accommodates cans up to 22 in. in diameter and 30 in. high. Hot water with detergent at 140°F. under 40 lb. pressure is sprayed on the inside and outside of the can as it revolves on a turntable. Washing, rinsing, and sanitizing requires 3 min. An automatic control device stops the operation if the washer door is opened before the cleaning cycle is completed. The unit is available in three finishes, hot dipped galvanized, carbon steel with a painted finish, or stainless steel.

Specially designed to be housed in a brick enclosure, a new Super Glo-Brick Open Hearth Charco-Gas Broiler for use where large capacity is required has been introduced by *Bakers Pride Oven Co.* A new patented grate and radiant heat permits the sizzling fat from the broiling meat to bounce back and be cooked on the surface of the meat. Fat dripping on the Glo-Brick causes a flame which chars the meat. The broiler features an internal grease drain, individually operated gas jet controls, and racks for multi-level pan broiling. A griddle may replace or be placed over the grate. Grate sizes are 1 to 9.

Bakers Pride Oven Co., Inc. has also announced a new line of counter top electric bake ovens. The ovens have been designed to bake fresh and frozen fruit pies, fresh pastry, rolls, buns, muffins, cookies, frozen dinners, frozen tuna pies, and frozen meat pies. Raw frozen food products may be baked without thawing. Two models are available: Model P20 will hold four 10-in. pies or one 20- by 21-in. bun pan at a time and operates on 209 or 220 volts. Model K01 will accommodate four 9-in. pies or one 18 by 19-in. bun pan and operates on 115 volts.

DuBois Chemicals, Inc. announces the development of "D-Tarnish" to restore finish to silverware. Electrolytic action lifts dingy salts from the silverware and deposits them on a sheet of metal placed in the sink.

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